C 21.2: AU 8/4

REVIEW OF AUTOMATED SYSTEMS
United States Patent and Trademark Office

July 1996

Pennsylvania State University
Libraries

AUG 2 7 1996

Documents Collection
U.S. Depository Copy

MATHIS
& ASSOCIATES

PREFACE

For over fifteen years, our Washington-based firm has conducted dozens of evaluations of how various technologies are impacting large and complex organizations. One of our underlying methodological assumptions is that no one knows better about whether electronic services and products actually work than the users who rely on them to do their jobs.

In this report in hand, we have sought to summarize our understanding about how technology is actually working at the Office of Patent and Trademark based on what we have learned during twelve months of interviews and survey activity in which over 3,000 PTO employees participated. Our frame of reference and lines of inquiry were shaped entirely by our charge and objective to determine the extent to which the primary users of PTO's technology--both internal and external users--said *their* business needs were being met.

In searching numerous documents in preparation for the interview and survey activities, we found very sparse documentation of PTO's unique automation story and in this report, we have attempted to create a historical context from which the reader can better understand some of the conditions and challenges which PTO faces today. And, of course, we have done our best to tell the stories told us by PTO employees and the public users of the agency's automated systems.

Patricia Mathis
Mathis & Associates
July, 1996

ACKNOWLEDGEMENTS

The Mathis & Associates team was supported by a number of information technology experts, executives and managers from Science Applications International Corporation (SAIC), and US Patent and Trademark Office (PTO) senior officials and managers in the development and implementation of this report.

SAIC executives and managers who provided information, background data and valuable advice when requested included Michael Bowers, Assistant Vice President and Program Manager, and Peter Engel, Senior Systems Engineer, PTO Systems Engineering and Technical Assistance.

Numerous officials and managers from PTO handled logistical arrangements at various stages of this project, provided historical documents for our review and answered question raised by the Mathis & Associates team. They included Bradford R. Huther, Associate Commissioner and Chief Financial Officer; Edward R. Kazenske, Deputy Assistant Commissioner for Patents; Phillip G. Hampton, Assistant Commissioner for Trademarks; Theresa Brelsford, Deputy Associate Commissioner for Administration and Quality Services; Dennis Shaw, Chief Information Officer; Bob Anderson, Deputy Assistant Commissioner, Assistant Commissioner Trademarks; Robert Stoll, Administrator for Legislative and International Affairs; Fred Difiore, Senior Program Analyst, Office of the Deputy Associate Commissioner for Administration and Quality Services; Greg Mullen, Program Analyst, Center for Quality Services; Karen Gregory, Administrator for Computer/Telecommunications Operations; Jay Lucas; Director, Office of Search Systems; Richard Stouffer, Manager Evaluation Division, Search and Information Resources Administration; Betty Andrews, User Support Representative, Trademark Program Control; Ray Rhan, Director, Office of System Development and Acquisition; Judy Swann, User Representative Evaluation Division, Search and Information Resources Administration; Bill Greyard, Special Assistant to the CIO; Mike Masinick, Manager (Acting), Application Management Division; our technical readers Pat Lindamood, Director, Customer Support Division; Brooks Hunt, Manager Implementation Division, Office of Search Systems; Rolfe Hille, Office of Strategic Planning and Patent Engineering; Gary Cannon, Director, Trademark Systems Division; Anne L. Cornelius, Trademark Examiner, Law Office 109.

Most of all, this report was made possible through the support and cooperation of all those PTO employees who participated in the interviews and completed the survey -- giving us their best thinking about how PTO's office automation systems are working for them and their customers and how they can be improved. We would also like to thank those members of the public who participated in our interviews and supplied us with valuable insight into X-Search, TRAM and the Trademark work process in general.

The Mathis & Associates senior team which supported this study included Vice President Dan Wojcik, Research Director Alexander Sedgwick, Assistant Research Director Ronald Parker, James E. Rogers, Senior Systems Analyst and Cathy Zambrano, Director of the Mathis Survey Group. A committee of external consultants also contributed to our planning process and gave invaluable insights: Kenneth Megill, Chairman of the School of Library and Information Science, Catholic University of America; Herbert F. Schantz, President, HLS Associates, International; Sheryl Rosenthal; and Barry Wheeler.

CONTENTS

		Page
	EXECUTIVE SUMMARY OF OFFICE AUTOMATION AT PTO	1
Chapter 1	OVERVIEW OF AUTOMATION AT PTO	13
Chapter 2	OFFICE AUTOMATION AT PTO	37
Chapter 3	SEARCH SYSTEMS AT PTO	59
Chapter 4	TRACKING SYSTEMS AT PTO	69
Chapter 5	MANAGEMENT ISSUES IMPACTING TECHNOLOGY AT PTO	105
Chapter 6	QUANTITATIVE STUDIES OF AUTOMATION	121
	BIBLIOGRAPHY	149
	GLOSSARY OF TERMS	151
	APPENDICES	

A. Statistical Analysis Derived from Survey (attached graphs)

B. Final Survey Results (attached tables)

C. Survey Questionnaire

Digitized by the Internet Archive
in 2013

http://archive.org/details/reviewofautomate00unit

EXECUTIVE SUMMARY OF OFFICE AUTOMATION AT PTO

INTRODUCTION

Mathis & Associates (M&A) was engaged by Science Applications International Corporation (SAIC) in April 1995 to conduct a series of interviews to determine user expectations and satisfaction with major automated systems and with "office automation" in general at the PTO. Custom-developed systems on the list for review were X-Search and TRAM. In Fall 1995, PALM was added to the review, thus assuring that most major PTO proprietary systems would be covered.[1] Focus groups were conducted between July - December 1995. The Office Automation review included all microcomputer hardware and software used by PTO staff, including commercial off-the-shelf (COTS) products.

Beginning in May 1995, M&A conducted a series of meetings with PTO management to discuss their views on PTO's information systems and to learn whether they believed the systems were meeting user needs. All managers who participated in these sessions were system users and some had been involved in systems development, design or implementation. The managers were asked to respond to questions that encompassed such issues as system feature functionality; performance; technical support and maintenance; and training and documentation.

Following these manager meetings, M&A conducted a series of focus groups with randomly selected users. These sessions were designed to create an impartial forum for learning how automation tools are used in the patent and trademark business processes and the extent to which these tools meet their daily work needs. At the beginning of each session, M&A explained the project and stressed the objectives. Participants were asked to frame their discussion around three basic lines of inquiry:

- What about the system is working well?
- What about the system needs to be improved?
- What about the system would you change if you could?

The qualitative information-gathering methods (interviews and focus groups) were rich and invaluable, but a quantitative survey was necessary to produce scaleable and projectable results. An early 1996 survey tested the accuracy of critical issues and

[1] A prior study of the Patent's APS system was conducted by Mathis & Associates in 1994 and a Report of the US Patent and Trademark Office was published in January of 1995 entitled Automated Patent System: Is it Meeting Examiners' Needs?

viewpoints raised through many hours of talking with an informed and reasonably representative cross-section of users and systems managers. The survey results are presented in greater detail in Chapter 6 and a full table of survey statistics and related information about the quantitative phase of the study are shown in Appendix C. Some of the most important numerical findings are woven into the narrative sections of this report.

TOP-LINE FINDINGS

The impact of technology at PTO is perceived by its employees in overwhelmingly positive ways. In the survey completed in April 1996, about 93% of all employees reported that office automation has had a positive impact on their ability to do their job. On first glance, this might seem an unsurprising survey result, but some preliminary interview commentators predicted we would find widespread resentment and resistance to emerging technology programs within the agency. But over nine out of ten professional examiners -- many of whom have long traditions in alternative ways of applying their trade -- reported that office automation has had a positive impact on how they perform their jobs.

PTO's dependence on technology is widespread and growing and made all the more obvious by the sheer measure of time employees say they now spend working on their PC from their desk. More than half (54%) of all employees spend four or more hours a day using their own PC and over one-third (38%) spend five hours or more each day. This means that, for the most part, employees are already performing most of their work from their own workstation -- a fact that could have significant impact on future workplace trends, such as telecommuting.

The widespread use of technology is largely the result of PTO's success in laying the two most essential bedrocks for an automation program: the provision of basic hardware and software tools to every employee and universal connectivity to PTO's internal network. Survey results confirm that PTO has done an adequate job of meeting the basic requirements of its employees: 98% of all PTO employees reported they were generally satisfied with the major PC equipment they have available to them. Nearly four out of five said that their primary PC at their disposal is fully adequate for all their needs. Eight out of ten employees perform four-fifths or more of their computer-related work from their desktop and over half perform 100% of their computer-related work from their desktop.

By Spring 1996, PTO had successfully provided office automation services through PTOnet to 96% of all employees who reported that they use it on a regular basis. The comprehensive reach of PTOnet has also made it possible to implement other essential applications -- such as APS Text. Eight out of ten survey respondents said they were satisfied with the ease of using PTOnet.

PTO's E-mail program has also been highly successful. Nearly 90% of all staff reported that they regularly use E-mail as a means of information sharing. Overwhelmingly, (95%) employees see E-mail as easy to use, despite the fact that a significant number (32%) of employees feel they were inadequately trained. This lack of training has had some negative impact in that employees who do not know how to append documents correctly sometimes upset network operations when they attempt to send large documents using E-mail software. Although E-mail training is available through the Workforce Effectiveness Division, employees must request--and managers must approve--the training.

PTO employees have become so quickly acclimated to the emerging technology that their expectations have now heightened to a cacophonous clamor for greater desktop access to all PTO information systems. A high percentage of systems users clearly want to see other PTO information systems added to PTOnet. Over one-third (36%) of all APS user respondents were disappointed that APS Image was not available from their desktop. Survey findings revealed similar disappointments about the lack of desktop access to PALM, X-Search and TRAM. Two out of three survey respondents said that placing these systems at their desktop would produce significant improvements to their productivity.

While PTO's CIO has a strategy in place to make application systems accessible through PTOnet, the success of this transition is dependent on many factors beyond the construction of an expanded distributed network. As more and more applications are added, usage and demand will grow and users are likely to protest even louder about the overall speed of PTOnet's operation. Nearly half (45%) of PTOnet users believe that speed is a problem and nearly two-thirds (65%) reported they believed that increasing PTOnet's speed of operation would greatly improve their productivity. Examiners -- who tend to use their PCs in more demanding and complex ways -- led the critique of the PTOnet's speed.

At the time of our interviews, commentators--generally examiners and administrative staff--pointed to the need to add more servers and remedy problems with specific servers that periodically grind to a halt. They also noted that many untrained users were dumping files onto the network in such an undisciplined way as to aggravate an already bad situation.

Accelerating the speed of PTOnet will require more than the replacement or addition of servers, cable and switching equipment because the network must be seen as a *system* of hardware and software elements whose strengths and weaknesses inevitably affect one another -- for better or for worse. What this means is that the network chain will ultimately be no stronger than its weakest link. And while the real speed of the network will ultimately depend upon projects such as the transition to ATM

switching technology to increase PTOnet speed beyond its current level of 10 MBPS, end-user perception of slow speeds is also effected by the speed of their workstation. Employees stuck with slower machines (286/386 vintage) perceive that the network is slower than those with more advanced equipment (486/Pentium).[2] Added to this are bad user habits--borne of inadequate employee training--that have a negative impact on PTOnet's performance. Given all of the above, PTOnet is unlikely to meet everyone's expectations until all of these issues are addressed.[3]

But outside of the speed issue, PTOnet fared well in its overall evaluation by users. More than 80% of staff across the agency approved of PTOnet's reliability (freedom from outages and downtime), the availability of applications on it, and its reliability as a storage medium.

Well over one-third (44%) of all PTO employees have older PCs (286 and 386) -- already two or more generations behind -- and this equipment will not be able to keep up with the demands placed on them by the latest versions of standard commercial-off-the-shelf (COTS) applications, as well as major PTO database systems scheduled for PTOnet. Because of a generally low-level of knowledge about how equipment and networks function, PTO employees are inclined to attribute any delay in the operations of an automated tool as being network-caused, which may account for the high level of dissatisfaction (45%) with network speed among all survey respondents. Such a generalization about the network as a whole is not, of course, true. What many people do not realize is that a 286 or 386 generation workstation can only go as fast as *it* can go, so that no matter how fast or how well the *network* is operating, it will seem sluggish and unacceptable to the user. It is likewise true that all peripherals which are part of the same network system can bog down the network and make the network itself *appear* slow, when the problem may be with the peripheral equipment somewhere along the chain of events. For these reasons, critics of PTOnet speed should evaluate PTOnet operations in a holistic way.

The CIO's most recent strategic plan calls for the purchase and delivery of 700 new workstations in December 1996 to examiners and another 1,600 agency-wide by December 1997. However, with the acquisition of better workstations--which should improve the *perceived* speed of the *existing* network environment--will come additional

---

[2] Only 47% of employees with 286/386 machines were satisfied with PTOnet's speed, as compared to 55% for employees overall. The findings when PTOnet speed satisfaction ratings are cross-tabulated by PC type are: 36% satisfaction among employees with 286 machines; 48% satisfaction among those with 386 machines; 57% satisfaction among those with 486 machines; and 48% for Pentium users. The odd drop in the last category might be due to the fact that this class of users performs more advanced and complex tasks using their PCs or it could be attributed to heightened expectations.

[3] As PTO moves to put the graphic-intensive APS Image system on PTOnet, it can expect the network to bear an even greater burden, despite the purchase of Pentium computers to support the application.

requirements for graphic-intensive applications (e.g. APS Image) over the network, which will tax the already limited bandwidth.

Just as PTO employees are raising their expectations and demands for universal accessibility to all major PTO systems from their desktop (over 50% of employees indicated that this would have a high to major impact on their productivity), they are simultaneously asking for software functionality and performance that match most Commercial Off-the-Shelf Software products (COTS). As more and more users become familiar with Windows-based applications and other easy-to-use graphical interfaces -- along with desktop accessibility -- they are becoming simultaneously frustrated that PTO's aging systems cannot stand up to the same standard. Overall, employees characterized PTO's home-grown systems as difficult to use (satisfaction with ease of use ranked 60%, 65% and 78% for PALM , TRAM and X-Search, respectively) and as unable to mesh with other software products (32%, 44% and 33% satisfaction).

During the focus groups, employees created a menu of issues -- and their concerns were validated in survey results -- that outlined functions that routinely appear in everyday software but which are sorely absent in PTO-developed applications. They claim that improving the functionality in basic ways will have a dramatic impact on their productivity. An illustrative wish list includes such items as a better explanation of error messages; the ability to import results of searches into correspondence documents; the ability to interrupt searches for user-defined reasons; the ability to download information from searching and tracking activities into other PTOnet software applications for follow-up analysis.

The largest single hardware and software challenge which PTO faces is the replacement of its legacy systems -- especially the PALM and TRAM tracking systems -- with functionality that is better matched to current workplace demands. These core legacy systems are used not only by examiners but by *virtually everyone* who handles applications in the Patent or Trademark application review process. All -- as in 100%--of Trademark examiners reported in the survey that they use TRAM at least several times a week and 93% of them use it every day. On the Patent side of the organization, about 80% of all examiners said they use PALM at least several times a week and 30% said they used it several times a day. Although the extent of examiners' dependence on PALM and TRAM is widespread and enormous, both systems are still imbedded in the mainframe architecture conceived in the 1970s and now only barely held together with aging parts and management promises that replacement systems are on the way.

The Office of the CIO has recognized the critical nature of these systems and has taken into account the significant costs associated with the maintenance and development of these important legacy systems. According to PTO's 1996-2001

Strategic Information Technology Plan, resources are being allocated to redesign and enhance both systems. By the end of FY98, if there is no slippage in the schedule, PALM and TRAM will be fully migrated from the mainframe environment to a more open relational database environment on PTOnet. Data for both systems will be stored in flexible database software and modern programming languages will be employed to enhance feature functionality in a Windows-like environment.

But even these redesigned systems may fall short of user expectations unless there is greater and on-going communications between the system designers and the larger user group -- the examining corps. Communication between management and examiners -- which is seen by survey results as inadequate -- needs to be improved dramatically if these legacy systems are to be redesigned in a way that address the needs and concerns identified in the focus groups and reflected in the survey findings.

The search tools upon which PTO's examining corps depend are still not meeting all user needs and expectations. On the Trademark side, examiners gave their highest scoring to X-Search's "historicity" performance, which measures how far back records are stored: nearly 93% were satisfied with this aspect of the system (94% for users overall). Still, examiners were equally clear that many other aspects of X-Search needed to be improved: over one-third were dissatisfied with the accessibility of terminals; over half were dissatisfied with the presence of editing tools; and one-fourth were dissatisfied with the degree of customization that X-search provided. But it was database integrity issues that overwhelmed all other concerns -- including dissatisfaction about data entry errors (57%), coding and classification (64%) and missing records (64%).

Overall, Patent examiners were more satisfied with APS Text than Trademark examiners tended to be with X-Search -- with one glaring exception. Although Trademark examiners were happy with X-Search's historicity, while Patent examiners gave APS Text its lowest marks in this regard. About half of all Patent examiners were dissatisfied with APS' limitations about how far back records are stored, presumably because of the fact that APS Text does not contain records prior to 1971. But Patent examiners were generally satisfied with most other aspects of APS Text.

APS Image fared less well than APS Text in the areas of accessibility of terminals (37% dissatisfaction among examiners) and the presence of editing tools (46% dissatisfaction). But overall, even APS Image was evaluated more favorably than X-Search, except for examiners' extremely high dissatisfaction (69%) with the speed of APS Image.

Slow response speeds appear to be a generalized problem with all of PTO's search systems, partly because advances in hardware and search software have not yet progressed enough to meet users' ever-expanding requirements in the

marketplace. Users familiar with the speed of a Pentium PC may expect, however unrealistically, that all of PTO's proprietary systems function at the same standard and, being human, are likely to feel some sense of disappointment. As new searching software becomes commonly available and faster machines are deployed to all examiners, some -- but probably never all -- of their frustrations should be alleviated.

Faster machines and more sophisticated software will not, however, address the pervasive problem with database integrity which examiners reported both in focus groups and in the survey findings. The undercurrent of dissatisfaction with data integrity was borne out in survey findings: over one-third (37%) of all survey respondents, including non-Trademark personnel, were dissatisfied with TRAM's "freedom from data entry errors" and nearly half (47%) of all Trademark examiners were unhappy. These results are primarily due to a combination of poor data entry software, the convoluted procedures for uploading images into the database and poor coding.

The most frequently described problem seemed to be data entry errors that occur at the point of origin and in the course of edits or updates to the record -- a particularly troubling situation because once entered they are virtually impossible to fix. The problems are then compounded when they are carried over into X-Search and get "memorized" there.

PTO's New Application Data Entry Systems (NADES), which uploads data to TRAM, is an anachronism that contributes more than its share to messing up initial data entry and subsequent updates. NADES is rigid and unfriendly and lacking in simple spell check features. The CIO plans to deploy an integrated PC-based NADES by FY97 and, once completed, the new system should do much to reduce TRAM and X-Search data entry errors.

Beyond the matter of initial data entry, however, there are many other points in the pipeline where entries and updates are made. For that reason, users report a disconcerting amount of inconsistent, contradictory information on various TRAM screens. The system should do a better job of cross-checking data entry and throwing flags as necessary to prevent users from entering incompatible information.

During the focus groups, Trademark examiners expressed in no uncertain terms their view that an overhaul of the Trademark coding is long overdue. They say the current coding is too broad in some cases, not nearly detailed enough in others and often archaic and no longer useful. A serious issue regarding the Design Search Codes was raised by the public, some of whom use X-Search and TRAM intensively, and believe that the main problem is not classification -- although they agree this should be updated -- but errors made by clerical staff in assigning codes to trademark designs.

On the Patent side, examiners were more satisfied with the basic data quality -- except for the lack of patent text search capability prior to 1971. Patent examiners scored the currency of information in PALM with a 91% approval rating and scored most other data integrity-related measures around the 80% approval level.[4] Likewise, PALM's data integrity performance was scored far better by Patent examiners than TRAM's was by Trademark examiners. In the areas of data entry errors, Coding/Classification accuracy and freedom from missing records, PALM scored satisfaction ratings of 78%, 84% and 88%, respectively. TRAM scored 53%, 65% and 69%, respectively.

Another looming challenge is PTO's need to provide better training of employees who use the technology PTO has put in their hands. PTO has historically not employed resources in a manner ensuring that its employees learn needed technology skills. It has not provided the time for employees, specifically examiners, to be trained to use their automated tools. This "penny-wise and pound foolish" practice has far-reaching implications on performance, on expectations and on productivity. Across-the-board, and for most systems, all PTO employees gave abysmal evaluations to virtually every aspect of technology training they get -- or rather do not get -- at the agency.

Staff expertise with major PTO systems, except the X-Search system, is substantially below what is needed and even long-time users of the systems often admit they do not really understand how the systems work. For example, only one-third of APS Text and PALM users consider themselves to be advanced users, despite their long-term usage. PTO did invest in training its Trademark examiners when the new X-Search system was delivered and the results have paid off: 86% of all Trademark examiners consider themselves to be advanced or expert users of the X-Search system.

Overall, there is a great need for PTO to improve refresher training for PTO systems across-the-board so that users can get training after they have had a chance to try out the system and become more familiar with problem areas. Employees also need better and more accessible documentation of systems.

In addition to training, PTO users of automated systems need more organizational support in order to get their computer-related problems solved effectively and quickly. Staff appear to be using the Help Desk extensively -- 70% of all survey respondents reported they had called it recently. Generally, they say they call about hardware-related problems (32%) and network problems (24%). Only 16% said they called recently about software problems.

---

[4] Sources in the OCIO counter that in spite of Patent examiners' generally positive attitude about PALM data, the integrity of the PALM database is, in fact, "woefully lacking."

The chief complaint of those who use the Help Desk is that repeated calls are necessary before the problem is adequately addressed. Forty-five percent (45%) of all callers said they had to call more than once before they got the latest incident they reported satisfactorily resolved. Over one-third (38%) of all survey respondents indicated that they were dissatisfied with the ability of the Help Desk to resolve their problem on the first call. An equal number of respondents were dissatisfied with the speed with which the Help Desk responded to problems.

Users are most likely to turn to colleagues in their office as the first line of support and nearly 90% of respondents said they were satisfied with the help their colleagues provided. This finding underscores the wisdom of providing more point-of-need help so that all employees can get their questions answered close at hand and that on-the-job training can continue in an incremental way. However, despite the universal satisfaction with this means of support, it is by no means uniform or consistent. Some units may have many computer savvy individuals while other units have few or none.

Communication -- between all organizations and within all the various constituencies of the agency -- is a major sore point that needs to be recognized and remedied. The introduction and support of new and better technology tools, even when coupled with adequate training, will not solve all of PTO's challenges as it moves toward a fully-automated environment. Employees are overwhelmingly disappointed with the information they receive concerning major decisions and changes that affect the information systems and software tools they use. Over half (56%) of all Patent examiners were dissatisfied with the amount of information they received and a shocking number of Trademark examiners -- 79% of all who participated in the survey -- were unhappy with the amount of information they received.

Survey results also reveal that employees are most apt to learn of automation-related events from colleagues and by word of mouth. Only a third of all employees rely on the Newsletter for such news and only one out of three reported that they learn significant information from their supervisor -- a finding that suggests a more far-reaching management challenge.

While the CIO points out that the Executive Overview of the 1996 SITP was available in shared folders on the network for anyone who cared to view it, apparently few people took the time to read it.[5] This underscores the fact that effective communication and collaboration is a two-sided proposition. Nevertheless, it is incumbent on the CIO and PTO management to find engaging ways of disseminating

[5] The SITP is also available on the PTO internet web page.

information to the very clients who will be most effected by changes to office automation and upon whom the success of any automation plan will ultimately depend.

Many employees are also dissatisfied with the level of participation they have in the decisions and changes that affect the information systems and software tools they use. In both Patents and Trademarks, one fourth of all examiners from both organizations wanted a greater voice in the automation program. Over the last few years, PTO has tried a number of organizational strategies whereby front-line employees -- especially the examining corps -- could have greater on-going participation in the design and evaluation of automation tools. According to these survey findings, the results have fallen short of the need.[6] PTO's executive management has recently crafted some new organizational strategies that should involve front-line employees in a more meaningful way and allow all the various organizations which have information technology roles to stay much closer to their customer.

Poor communication about automation strategies and activities has undermined some of the credibility of the CIO and other PTO managers responsible for implementing the agency-wide program. During the course of focus group discussions and related interviews, more than a few managers and front-line employees reported their perception that the agency had no comprehensive strategy or plan for addressing user concerns. This obviously is not the case. A thoughtful and comprehensive strategic plan was updated and released in December 1995. But absent the quantitative survey conducted at the end of this project, the conventional wisdom that emerged during the interview phase might have obscured the fact that, by and large, PTO employees believe they are being well-served by the technology they have available to them.

But it is clear that most employees believe they are left out of the process and are not kept informed about what is going on. This poor communication has the effect of eroding confidence in the CIO no matter how significant their accomplishments might be. The problem of agency-wide communication extends far beyond criticisms of how the CIO conveys information and that office alone cannot fix all the communication-related and other management issues that come into play in these matters. In recognition of some of these prevailing views, the CIO has begun the process of building more customer focus into the strategic plan -- both in terms of end-user participation in system design, and through on-going participation in the evaluation process.

---

[6] According to sources in the Office of the CIO, it has been extremely difficult to get Trademark employees to participate in requirements sessions. Patent employees, on the other hand, participate in all requirements initiatives. They add that a significant problem facing PTO is that users sometimes get "hung up" on a specific product or technology rather than solving business needs.

While CIO should focus on providing better status reports and using all the electronic tools -- such as E-mail, shared folders and electronic bulletin boards -- to keep everyone apprised of technology-related activities, other senior managers should focus on developing processes for keeping the workforce better informed and inviting front-line feedback on all matters that affect them. The Business Council program instituted in 1993 has apparently afforded many new opportunities for senior managers to work together in more collegial ways. In order for all the positive objectives of that program to be fully realized, every executive, senior manager or other Council representative must institutionalize that spirit of cooperation and information sharing by keeping their own organizations well-informed and motivated to participate in the shaping of all business processes and products.

The impact of technology on productivity--the "is it worth it?" question--still survives as a philosophical debate with some at PTO. During the first weeks of an antecedent study of APS (conducted in 1994) and at the outset of this current work, comments and skepticism about the impact of all this technology on PTO's overall productivity performance were frequently expressed and many managers are still struggling for "proof that this works."

This is not a theoretical debate easily resolved because there is very little relevant research around which an informed discussion can be framed. Still, the unrelenting pressure which examiners and managers both feel and reported to us throughout this study (as well as during an antecedent study of the APS program) keeps alive the debate about whether the vast effort PTO has expended to automate business processes has made either individuals or the process more efficient and effective. Certainly no one has made it a priority to create a productivity model, nor would it be easy--or perhaps even useful--to attempt to do so at this point, having lost any opportunity for benchmarking what life was like before automation. What is known is that the sheer number of applications is growing enormously and, at this point, no one can imagine doing their job in any other way. What is also known is what PTO employees have told us: 93% of all employees say that office automation has had a positive impact on their ability to do their job.

Chapter 1: OVERVIEW OF AUTOMATION AT PTO

INTRODUCTION

Few organizations have faced greater technological challenges than PTO has in the last quarter century. The agency has truly been a testbed for the design and deployment of complex information systems. Because of the uniqueness of the agency and its mission, PTO continually finds itself to be a pioneer, traversing terrain that has never been automated before. Inevitably, such boldness and growth yields concomitant problems which can, sometimes, overshadow success.

Since launching the first *Automation Master Plan* in 1982, PTO has become increasingly dependent upon information systems to conduct its daily business. While the "paper-less office" called for by the 1982 plan has yet to materialize, the agency has automated many major business processes, including revenue collection, patent and trademark application tracking and searching of prior issued patents and registered trademarks. Dependence on information systems will continue to increase as the number of applications submitted -- and therefore the amount of information to be processed and managed -- grows and new, more advanced automation solutions are introduced into the agency. A number of initiatives have been undertaken recently as part of a renewed effort to position PTO for its rapidly increasing role in the global economy.

In fiscal year 1995, PTO received 236,679 patent applications and 175,307 trademark applications.[7] These preliminary figures indicate that utility, plant and reissue patent applications (UPRs), which represent over 90% of all patent applications, grew by 18.9% in FY95, well above the average annual 4% increase. This surge is attributed to a third quarter rush by applicants to file their applications before the transition to the 20-year patent term, which took effect on June 8, 1995. Trademark applications grew by 12%, 2% above the anticipated increase in volume. Managing this rapid increase in application and the millions of associated pieces of paper has become a continuing PTO challenge. The agency plans to institute procedures and develop information systems to reduce paper flow, streamline application processes, reduce application pendency, improve the quality of patents and trademarks and better serve the public. [8]

---

[7] *Setting the Course for Our Future.* A Patent and Trademark Office Review, Fiscal Year 95, pg 18-20. Patent figure includes UPR and design applications.

[8] Pendency is the time from receipt of a patent or trademark application to its issuance/registration, or rejection/abandonment. The current target for patent pendency is 18 months.; for trademark, 13 months.

Patent Application Process

Patent applications are mailed directly to PTO and must include three key components: (1) a written document which includes both the invention's specifications and a declaration that the inventor believes the invention to be original; (2) a drawing of the invention when such a drawing is required to understand the invention; (3) and a filing fee.[9] Specifications must include an easy-to-understand description of the invention, how and of what it is made, how it is to be used, and "claims" about the invention's essential elements and features, used to judge patentability.

Until recently, the application was received in PTO's main Mail Room where an eight-digit serial number was attached to the file jacket (also called the "docket file") in bar code label form. Application fees submitted were formerly sent directly to PTO's Finance Office for processing.[10] Now, however, Patent has a "one-stop processing" unit to do much of the work previously done by the Mail Room and Finance Office.[11] The Mail Room sends applications directly to the "one-stop processing" unit where eight two-person teams sort, organize, code, process fees and prepare the application for pre-examination.

Prior to examination by a patent attorney, the application passes through a pre-examination process in which it is prepared for and assigned to an attorney. It is reviewed for completeness, given a serial number, coded, entered into the Patent Application Location and Monitoring System(PALM) and assigned to an appropriate examining group. If the application is incomplete, the applicant is notified and given a specific period in which to send in missing parts. If an applicant does not respond to this request by the specified date, the application is returned. If the application is complete, it is given a primary (class) and secondary (sub-class) classification number using the U.S. Classification System. It is then screened for security and government property rights, microfilmed and assigned to an examining group, art unit and individual examiner.

Pre-examination staff enter bibliographic data about an application into the Patent Application Correction and Entry system (PACE) before it is sent to the examining corps. This data is then uploaded from PACE into PALM. The PALM/PACE

---

[9]Unlike most government agencies, PTO finances itself primarily from the fees that it collects for its products and services.

[10]Fee processing includes recording payments in an automated system known as CRDA, posting cash receipts and adjusting accounts.

[11]The "one stop processing" division is the first of many near-term changes that will result from PTO's migration to a "case management" approach to application processing.

system prints a label for the application file jacket and a receipt for the applicant that includes the serial number, official filing date, primary and secondary classification numbers and identifies any missing parts.

The more than 2,000 Patent examiners are organized into 16 large examining groups, which are further divided into art units covering even more discrete disciplines. Examining groups are managed by a director and organized by discipline or type of technology. Each group and unit is identified by a four digit number. Chemical group numbers begin with 1; electrical with 2; and mechanical groups with 3. Art unit numbers are related to the group to which the unit belongs. For example, art unit 1302 (*food or edible material, processes, compositions and products*) is one of eight subgroups of examining group 1300 (*specialized chemical industries and chemical engineering*). Supervisory Patent Examiners (SPEs), veteran examiners who have moved into management roles, head each art unit. There are currently 150 SPEs at PTO. The examining corps offices are spread throughout PTO's complex in Crystal City, Virginia.

Each examining group has central files which hold assigned application files and other related documents when they are not being used. SPEs are responsible for "docket assignment" -- assigning an application to a specific examiner. Examiners receive regular updates on their docket assignments and retrieve application files from central files when they are ready to begin a case.

After reviewing an application to ensure that all legal requirements have been met, a Patent examiner searches technical literature to make a decision on patentability. The primary test is whether the invention really is new and innovative. The technical literature (or "art") includes prior-issued U.S. patents and foreign patents, related documents, and non-patent literature such as journal articles and abstracts. The ease with which an examiner can locate relevant prior art is influenced by the various classification schemes used to organize patent and non-patent literature. Examiners use both hard copy and on-line sources, including the Index to the U.S. Patent Classification System, The Manual of Classification and The Manual of Classification Definitions, to facilitate the identification of appropriate art areas to search.

The total time that examiners are given to review and close an application varies with seniority and art unit. Within this overall framework, examiners allocate their time between three main tasks: identifying the art to research, researching, and writing up their decision on patentability. The actual time spent on each task depends on the art unit, the nature of the application, and the examiner, but generally examiners allocate time fairly evenly among the three tasks. The Patent examining corps is unionized and has clearly specified production quotas.

After making a decision, the examiner notifies the applicant in a written "Office Action". The first Office Action often indicates a rejection (many applications are not allowed as filed) and provides instructions on properly amending the application. Applicants are given a specific period to resubmit the application with a written amendment that addresses the reasons for rejection identified in the Office Action. The response period is set by law (typically three months), but can be shortened by the PTO Commissioner. If an applicant does not respond in time, the application is considered abandoned.

If the applicant makes amendments as directed, the examiner reviews the amendments and may reject the application again or allow it. A second rejection is usually final and the applicant is notified in a second Office Action. The applicant's first recourse to a final rejection is to take the matter up with PTO's Board of Patent Appeals and Interferences (BPAI).[12] If the BPAI also rejects the applicant's claim, an appeal can be made to the Federal Circuit Court of Appeals, which has the ultimate jurisdiction.

If the examiner allows an application, the invention becomes a U.S. Patent. About 2/3 of all applications eventually become patents. Applicants are sent a "notice of allowance" and informed that they have three months to submit a patent issue fee. Once the fee is received, PTO issues the patent and publishes it in the *Patent Official Gazette*. The patent is entered into the manual and the automated search systems that are used by examiners and made available to the public through the Patent and Trademark Copy Sales (PTCS) division in the public Patent Search Room in Crystal City, Virginia, and at 78 Patent and Trademark Depository Libraries (PTDLs) around the country. Granted patents are also entered into a number of commercial databases accessible for a fee. If the PTO does not receive the issue fee within three months, the application is considered abandoned.

U.S. patents have a 20-year term from the earliest effective application filing date.[13] Patent owners must pay maintenance fees at three intervals -- at 3½ years, 7½ years, and 11½ years. An owner has a six month grace period after the due date to pay the fee and a penalty. If the fee is not paid within the grace period, the patent expires. A patent owner may sell or bequeath ownership at any time through the "assignment" process and PTO notifies the public of assignments through the *Patent Official Gazette*.

A U.S. patent only protects an invention domestically. U.S. inventors who want foreign protection must submit an application directly to those countries or, if a country

---

[12]An "interference" -- which affects about 1% of applications -- is a process by which PTO arbitrates which of two applicants with essentially the same invention should be granted a patent.

[13] *Setting the Course for Our Future*. US Patent and Trademark Office Review, Fiscal Year 1995, pg. 19.

is a member of the Patent Cooperation Treaty (PCT), to the PCT office at PTO.[14] The PCT provides standardized filing procedures and formats for member countries and centralized processing.

Trademark Application Process

Trademark applications include four key components: (1) a written application form; (2) a drawing of the mark; (3) the filing fee; and (4) if the mark has already been used in commerce, at least one specimen for each class of goods and services for which the applicant is applying. There are three types of trademark applications: a "use" application for marks already used in commerce; an "intent-to-use" application indicates the mark has not yet been used but the applicant *intends to do so*; and, under certain international agreements, an application is filed based on the mark's registration or application in another country.[15] "Intent-to-use" applicants are given a deadline by which to use the mark and submit an allegation of use, without which the mark will not be registered.

Trademarks received about 175,307 applications in FY94, up 12% over FY94. Until recently, an application was received in PTO's main Mail Room where it was sorted, opened, and placed in a file jacket, to which is attached a unique bar code label. Application fees were sent to PTO's Finance Office for processing before the file was sent to examiners.

In April 1994, Trademarks assumed responsibility for file-related activities previously handled by the main Mail Room.[16] Trademark applications and related correspondence are now sent directly to the Trademark building in Crystal City where "application examiners" in the Intake Unit sort, organize, code, serialize and prepare the application for examination.[17] Although the Finance Office still handles fee processing, its staff is now located in the Trademark building and work more closely with the Trademark group.

---

[14]Some 44 countries are members of the PCT, which came into effect in January 1978.

[15] If the mark has been used in commerce, a specimen is required. If the mark has not been used in commerce, no specimen is filed.

[16]This transfer of activities created a processing backlog that has yet to be cleared up. Initially beginning in pre-examination, the backlog is now most dramatically felt in the examination phase where examiners have up to six months of pending applications.

[17]Unlike the Patent group, which is spread out across several buildings, the Trademark group is concentrated in a single building (South Tower).

During pre-examination, a trademark application is reviewed to ensure it contains all required parts. If it is incomplete and fails to meet minimum requirements, the entire application is returned. If the application appears to be complete, it is coded, classified and assigned to an examining Law Office, where a Trademark examiner will review it and determine whether the mark can be registered.[18]

Before the application is sent for examination, it must pass through several other steps in the pre-examination process. After it is coded and assigned to a Law Office, it is conveyed to an outside contractor[19] responsible for entering information about the application into the New Application Data Entry System (NADES).[20] The application contents are then microfilmed and secured in the file jacket, and the application is sent to the appropriate Law Office.

Trademarks has two examining groups, which together contain 9 Law Offices of approximately 28 examining attorneys each.[21] Each Law Office is responsible for specific types of applications. Law Office 101, for example, examines service marks for foods, beverages and chemicals. Each Law Office is headed by a Managing Attorney.[22]

Trademark applications are kept in central files in each Law Office until they are sent to examining attorneys in batches. Unlike in Patents, trademark applications are not assigned to individual examiners, but instead to specific Law Offices, which distribute them to examiners in the order received. The examiner requests new applications as needed from the central file room.

After reviewing an application to verify that legal requirements have been met, an examining attorney must then search a database of registered, intent-to-use and filed

---

[18]The coding process involves bracketing off each unique piece of information (e.g., applicant name and address, goods and services for which the registration is sought, dates of first use in commerce) for the data to be entered. Drawings or designs that are a part of the mark will be given a code that identifies their type.

[19]Trademark's database support contractor's services include: new application data entry; text editing in TRAM to make changes, corrections or amendments; and proof reading and verifying TRAM information against paper file information before it goes to Trademark's Publication and Issue Unit.

[20]Information in NADES is uploaded into TRAM, which prints out a file label and a file receipt. It currently takes two to three months after mailing an application for the applicant to get a file receipt. PTO's goal is 10-20 days.

[21]As part of a government-wide initiative to reduce management, Trademark reduced the number of Law Offices from 13 to 9 in October 1995.

[22]The 9 Law Offices are numbered from Law Office 101 to Law Office 109.

trademarks to make a decision about registrability. Whether a mark can be registered is determined by whether a conflicting mark exists. Examiners must take into account the *similarity of the marks* and the *commercial relationship* between the goods and services identified by the marks.[23]

Once an *initial* decision is made on the mark's registrability, the examining attorney notifies the applicant in a written "Office Action". Some first Office Actions notify the applicant that the mark cannot be registered, listing grounds for rejection and any amendments that must be made before it can be reconsidered. If the applicant does not respond to a rejection within six months, the application is considered abandoned.

If the applicant does respond, the examining attorney reviews the amendments. A rejection at this point is considered final by PTO; however, an applicant can appeal to the Trademark Trial and Appeal Board (TTAB) and after that the Federal Circuit Court of Appeals.

If an examiner approves the application at first examination or after amendments, the mark is published for opposition in the *Trademark Official Gazette* (TMOG) and the applicant is notified through a "Notice of Publication". Trademark's database support contractor proofreads and checks the application against data in the Trademark Reporting and Monitoring System(TRAM) to make sure that the information to be published is accurate. Trademark's Publication and Issue Unit then manages the publication process in cooperation with an outside contractor and the U.S. Government Printing Office (GPO).[24]

If after 30 days, no one files an opposition to the registration, the application proceeds to the final registration stage. In the case of "use" applications, the mark is registered and a registration certificate issued within approximately 120 days after the mark's publication. For "intent-to-use" applications, a "Notice of Allowance" is issued by PTO within approximately 120 days after the mark is published. Once this notice is mailed, an applicant has six months to either use the mark in commerce and submit a "Statement of Use" (SOU) or submit an "Extension of Time to File a Statement of Use" form.[25] Once the SOU is filed, the Intent-To-Use Unit reviews the SOU and forwards it

---

[23] Trademark examining attorneys are given a specified period to review and close an application (at a rate of 1.1 per hour). Trademark examiners are unionized and have production quotas.

[24]The outside contractor, a New Jersey company subcontracted to GPO, prepares camera-ready copies of drawings associated with the marks. The contractor returns camera-ready copy to Publications and Issue Unit for proofing. The GPO actually publishes the TMOG and the registration certificates from a database file provided by the TRAM system.

[25]An applicant may get extensions for up to 36 months from issue of the "Notice of Allowance."

to the assigned examining attorney who either accepts the SOU or issues an "Office Action" rejecting the SOU. If accepted, PTO issues a registration certificate. If rejected, the applicant can respond and either receive a final rejection or ultimately be issued a registration certificate. Final rejection of a "Statement of First Use" can also be appealed to the TTAB.

Unlike patent rights, trademark rights last indefinitely as long as the owner conforms to PTO's post-registration procedures and continues to use the mark in commerce. Between the fifth and sixth year after registration, a mandatory affidavit of use must be filed with PTO. Every 10 years thereafter the registration must be renewed. Failure to comply with these rules will lead to cancellation of the registration. The owner of a trademark may at any time sell or bequeath ownership through the "assignment" process, which is made public by PTO.

Role of Automation in PTO's Overall Business Processes

As a result of Public Law 96-517 in 1980, PTO developed its first *Automation Master Plan* in 1982 for the period 1982-1990. In response to Congress' request that PTO "develop. . . computerized data and retrieval systems equivalent to the latest state of the art which can be applied to all aspects of the operation of [PTO], and particularly to the patent search file, the patent classification system and the trademark search file,"[26] PTO outlined a series of goals and objectives for the automation program:

> The primary goal of the automation program is to support more fully all PTO processes so that they are completed in a timely and efficient manner. This goal will be realized through a paperless patent and trademark operation. Three automation capabilities are key to this concept. First, paper files and paper handling operations will be replaced by electronic and other computer accessible databases. Second, communications with applicants and constituents will be in modes and media chosen by them and supported through electronic terminals, telecommunications and other automation technology. Finally, all patent and trademark pre-examination, examination, post-examination, classification, and management control functions will be supported through (a fully automated environment).
>
> The secondary goals of the automation program are to improve the management of the growing information databases, reduce the reliance of Patent and Trademark examiners on manual procedures, improve the integrity of PTO files, decrease pendency times on patent and trademark applications, and increase the overall cost effectiveness of PTO operations.[27]

---

[26]U.S. Patent and Trademark Office. *Automation Master Plan: Developed in Response to Section 9 of P.L. 96-517.* U.S. Department of Commerce, October, 1982, page iii.

[27]U.S. PTO. *Automation Master Plan:* pp. 1-3.

The Automation Master Plan outlined five automation subsystems: (1) the Text and Image Capture Subsystem -- "the primary vehicle by which new text and image data enter the system"; (2) the Text and Image Database Processing Subsystem -- "database index search, text processing, and image processing"; (3) Electronic Workstation and Workstation Services Subsystem -- "the vehicle through which PTO personnel will interact with the system"; (4) Management Information Services Subsystem -- "the components necessary to create, maintain, and provide management information and computer-aided management tools to PTO officials"; (5) Network and Process Control Subsystem -- "will support all other subsystems by providing a transparent, virtual electronic pathway between them, and exercising control over the process."[28]

Although the overall objectives of the Automation Master Plan have continued to guide PTO's automated systems development and implementation, the actual components have changed dramatically over time. In response to technological changes and agency requirements, the plan was revised several times, the last of which was in 1987. Since then, the agency has produced a series of "Information Technology" plans which highlight major automation activities, developments and planned enhancements, the most recent in December 1995.[29]

Over the last 15 years, PTO has developed a number of information systems to support its business processes. Most of these systems have been developed in an evolutionary fashion, using a combination of internal system developers and outside vendors. The 1996-2001 *Strategic Information Technology Plan* outlines most of PTO's current and planned automation systems and activities. The following section describes the information systems associated with specific patent or trademark processes.

Role of Automation in the Patent Process

Automation plays a major role in patent application processing: PALM tracks application location and status; CRDA (Cash Receipts/Deposit Accounts System) tracks application fees; the APS database is searched during examinations; and office automation tools are used to draft Office Actions, perform analysis, communicate and perform other day-to-day tasks.

One of the first automated systems developed for Patents was PALM, which the agency began developing in 1980. A transaction system designed to track, monitor and

---

[28]USPTO. *Automation Master Plan:* pp. 1-6 & 7

[29]U.S. Patent and Trademark Office. *Strategic Information Technology Plan: FY96-FY2001.* U.S. Department of Commerce, December 1995.

report on the handling of patent applications, PALM allows PTO to track an application's location and status and to report case statistics (e.g., title, legal representation, file date, applicant petitions), Office Actions, statutory response period compliance, and other file docket-related information. Through the capture of this data, PTO is able to both measure and report on workload, workflow and productivity of both the examining corps and other PTO employees who support the examination process. PALM also provides information needed to manage and forecast pendency by such categories as application, examiner, art unit, group, discipline and the entire Examining Corps.

There are some 3,000 Patent staff who routinely use PALM to perform some aspect of their job. Any staff person involved in processing or managing the patent application flow uses PALM. Clerical and technical staff enter data into PALM using bar code readers. Examiners and managers view PALM displays using "dumb terminals". And managers, including Examining Group Directors and Supervisory Patent Officers (SPEs), review and use batch reports produced from the PALM database.

PALM is one of six systems that operate on PTO's Unisys A16 mainframe. [30] PALM's data network devices include Unisys B-28/38 PCs, "dumb terminals", Welch Allyn bar code readers and wedge devices, and printers. These devices are located throughout Patent's 11 office buildings in Crystal City and at two remote warehouses in Virginia where application data is stored. PALM terminals with BCRs (bar code readers) are strategically placed in Patent pipeline work areas -- units where pre- and post-examination activity occurs -- as well as at central locations in examining groups.

From 1980 to 1990, PTO's Information Systems division was responsible for PALM development. The Patent Cost Center of PTO's Search and Information Resources Administration (SIR) began overseeing PALM development in the early 1990s and became the "system owner" in 1991. That same year, the Application Management Division was established in the CIO's Cost Center to provide PALM technical support and oversight.[31]

PTO's major information systems groups -- the offices under the Chief Information Officer (CIO),[32] including the Administrator for Computer and

---

[30]The other systems on the Unisys A16 mainframe are PASS (Assignments) System; CRDA; TRAM; Trademark Photocomposition System; and Attorney Roster System.

[31] Actual development -- changes to program software -- is performed by the CIO's Application Management Division, not SIR. The latter is responsible for developing specifications for development.

[32]Subsequent references to "the CIO" refer to the Office of the CIO and not any specific individual in that office. This office is the central management organization now charged with responsibility for all technology planning, policy, procurement and program management.

Telecommunications Operations (ACTO) -- currently have responsibility for PALM system software, database structure and administration, system performance, and Help Desk operations.[33] While the Help Desk responds to all hardware and maintenance issues and system outages, the CIO's Application Management Division provides users with any other kinds of technical support as needed.

PTO planned to begin automating the entire application process -- including electronic filing, processing and patent maintenance -- through the development of a Patent Application Management System (PAM) to replace PALM. In August 1994, however, PTO entered into an agreement with the Japanese Government that led to a change in the PAM project. Under this agreement, PTO was required -- by January 1, 1996 -- to provide electronic access to patent applications 18 months after they have been filed, in order to allow the public access to their technical content prior to issue. In response to this unanticipated requirement, PTO redirected the PAM effort toward the development and implementation of a Pre-Grant Publication System (PGPub). The analysis and design work for PGPub was launched in September 1994 and the system was scheduled to be fully operational by the target date. However, as of June 1996, the legislation authorizing PGPub has not been enacted. As PGPub would be the initial implementation of capabilities associated with PAM, PTO will evaluate this "interim" system to decide whether, and how, to proceed with PAM.[34]

In the meantime, PTO has a number of enhancement projects planned for PALM. Modifications will be made to support the PGPub project and the PACE sub-system will be upgraded. The PALM-on-PTOnet project -- allowing PC access to PALM via PTOnet -- is underway. A limited number of users (200) will have access to PALM on PTOnet by July 1996. As part of the 1996 Strategic Information Technology Plan (SITP), resources will be directed to migrate PALM from the mainframe environment into the open-architecture client/server environment. PALM data will be available in a relational database and modern programming tools and techniques will be employed to enhance feature functionality. This redesigned PALM system will have an intuitive, Windows-like interface and greater flexibility; for example, users will be able to easily download data and manipulate or analyze it using commercial software, such as spreadsheet and database applications. The redesigned PALM system is scheduled for completion and implementation in FY98-99.

---

[33]PTO's centralized Help Desk supports user problems associated with information systems. PC problems are supported by an outside contractor and mainframe-related problems addressed by PTO staff.

[34]If PTO decides to continue the development of PAM, it will be incorporated into a Systems Development and Maintenance (SDM) contract scheduled to be awarded in early 1997. The SDM vendor will eventually replace all PTO system development and maintenance contracts.

CRDA tracks patent application fee collection and processing. The "one-stop processing" teams in Patent record fee collection (cash, checks, money orders and deposit accounts) associated with application processing and maintenance in CRDA. The information in CRDA is checked against information entered in PACE on a regular basis. Patent examiners and pipeline staff view CRDA displays to see which fees have been paid for a given application. PTO will implement, in October 1996, a new fee processing system, the Revenue Accounting and Management System (RAM), which will perform the same functions as CRDA but add enhancements such as more data entry terminals and improved security and reporting features.[35]

The major automation tools which support the patent examination process are the subsystems of Automated Patent System (APS) -- the Classification Data System (CDS), Text Search system and Image Search system. [36] These information systems comprise the core of APS.

CDS, introduced in 1982 and updated in 1993, maintains classification data for all granted patents and patent applications. It supports both U.S. and foreign patent classification as well as issued list patents and patent file maintenance. Patent examiners rely heavily on classification schemes throughout the examination process. To associate patent applications with class and subclass data, examiners access CDS.[37] Over the next few years, PTO plans to upgrade CDS software and hardware. PTO's reclassification projects through the CDS analyze thousands of patents in a class or subclass and order them in a manner that enables examiners to more efficiently make patentability decisions. In 1993 alone, PTO reclassified almost 400,000 patents through CDS.[38]

---

[35] RAM is being developed using the same tools, techniques and database structure with which PALM and TRAM will be redesigned.

[36]The primary, non-automated examination search source is an extensive system of wooden and metal shoebox-sized drawers -- "the shoes" -- which contain copies of patents dating back to 1790, when patents were first granted by the U.S. Government. The shoes also contain a limited collection of foreign patents, as well as a somewhat random collection of patent-related literature, such as journal articles. The shoes, which require manual searching, are located throughout the Patent offices. Some groups require their examiners to search the shoes in addition to APS to ensure a comprehensive search.

[37]To access CDS, examiners use Messenger software, licenced by the Chemical Abstract Service (CAS) that resides on an Amdahl mainframe. CDS "feeds" the Messenger software. CAS is a subcontractor to the primary APS contractor, PRC, which has supported APS development and implementation since 1984.

[38]Reclassification is the process of continually revising the U.S. Patent Classification System to maintain its usefulness as a search system. The U.S. Patent Classification System is an extensive schedule of patents broken down into classes (primary) and subclasses (secondary). The reclassification process involves the restructuring or creation of classes and subclasses to reflect: 1) the evolution of the

The Text Search system, introduced in 1986, allows Patent examiners to search and retrieve the text of over 1.8 million U.S. patents granted since 1971[39] and English language abstracts of some 3.0 million Japanese patents from their desktop.[40] Messenger also provides the Text Search software system.

The ability to search the full text database was provided to the Patent Search Room in 1989 and to 14 PTDLs in 1991. Although access was free at the PTDLs for a three year trial period, subscriptions to APS Text became available to all 78 PTDLs for a fee as of January 1995.[41]

PTO's Text Search enhancement projects focus on the replacement of the customized Messenger software with commercially available software. The RFP (Request for Proposal) for the Messenger Replacement Project will be issued in FY97 and a contract awarded in FY98. The vendor selected to replace Messenger will also be responsible for linking Text Search to other existing (CDS) and planned (PAM, Global Patents) PTO systems, as well as to external (commercial) databases, which are becoming an increasingly important search tool for patent examiners. [42]

The Image Search system, or the Classified Search and Image Retrieval system (CSIR), allows examiners to search, retrieve, display and print the images of 5.8 million U.S. patents dating back to 1790 using dual screen image workstations located in

---

art involved; 2) the emergence of new art; or, 3) the need to subdivide subclasses that have become too large for efficient searches.

[39]Although there is a plan to load a batch of missing patents from the period 1971 to the present, there are currently no firm plans to load patent texts dating from 1790 to 1971.

[40]Until December 1994, when all Patent examiners were connected to PTOnet, the Text Search system was accessed: 1) via shared, single screen "text terminals" placed throughout Patent offices; 2) via dual-screen image workstations available to four of PTO's 16 examining groups; and 3) via the desktop if an examiner had a PTOnet connection or a modem.

[41]Until December 1994, when all members of the Patent examining corps were connected to PTOnet, examiners accessed the Text Search system in three ways: 1) via shared, single screen "text terminals" strategically placed throughout the examining corps' offices; 2) via dual-screen image workstations available to four of PTO's 16 examining groups; and 3) via the desktop if an examiner had a PTOnet connection or a modem.

[42]Patent examiners search a variety of commercial databases (e.g., CAS/STN, Dialog, Lexis, Orbit) to review non-patent technical literature and foreign patents. Examining groups, as well as individual examiners, have access to different commercial databases, based upon the types of information they need regularly. An examiner must have an account number to access a given commercial database, whether from their desktop, at a terminal in their work area or in PTO's Scientific and Technical Information Center (STIC).

common work areas. Examiners can also search the text of patents dating back to 1971 and access commercial databases, through image (or "cluster") workstations.[43] The Image Search system is comprised of the Image Search database and CSIR software.

Image Search capability is currently available to five of PTO's 16 examining groups. Group 2200 was provided image workstations in 1988; Group 2100 in 1989; Groups 1200 and 2300 in 1993; and Group 2600 in 1995. The deployment of a third generation workstation, called Shared Use System workstations, in early 1995 was the final deployment of a shared use-type image workstation. In February 1996, PTO began a three-year "Desktop Deployment Project" which will bring image search capability to the desktop of Patent examiners and classifiers.

The public has been able to search the Image Search system in the Patent Search Room since 1993. The public can also place orders for copies of patents through PTCS, which is linked to the Image Search system. Order information processed through PTCS is passed to APS, which retrieves the images of ordered documents from CSIR's database.

There are three additional planned APS subsystems which are not yet operational. Besides PAM, PTO plans to develop a Global Patents System to allow examiners to access European and Japanese patent abstracts and a Non-Patent Literature system (NPL) from the desktop. The NPL project involves adding search and retrieval capabilities to APS that include access to external databases and the incorporation of materials that accompany patent applications.

The final major group of automated tools used in the patent process are the hardware and software that make up office automation. This includes desktop computers linked to PTOnet, software provided on the network and some stand-alone computers. By 1995, all Patent Examiners had a PTOnet-linked computer on their desktop. Examiners use these computers in their day-to-day business to conduct searches of the Text Search system, prepare Office Actions and other correspondence, access commercial databases and send electronic mail.

Office Automation tools are used by most staff of the Patent group, which numbers approximately 3500, from examiners and managers to clerical and support staff. Some 55% of the total 6,337 microcomputers in use at PTO are located in Patents. Most of these microcomputers are linked to the PTO wide area network (WAN), PTOnet, and access COTS software over the network.[44] Some user-developed

---

[43] CSIR is currently deployed to approximately 100 desktops as "dual boot" machines.

[44] An example of some of the current COTS products on PTOnet include Microsoft Windows, Word, Access, Excel, PowerPoint, E-Mail, Schedule+ and MS Project; Novell WordPerfect and Quatro Pro;

software that has been adapted to PTO's Life Cycle Management (LCM) standards has also been placed on the network.[45] There are almost no stand-alone PCs in use at PTO and few remaining Macintosh computers. The remaining stand-alone PCs often have their own special software applications and dedicated functions.

PTOnet is a comprehensive end-to-end data transmission facility which links virtually all PCs at PTO. PTOnet connects computers in 13 buildings in Crystal City and provides network services to more than 5,000 users. It provides users with COTS software, electronic mail and file sharing, access to Patent and Trademark databases and other applications stored on network file servers, mainframes and microcomputers. PCs connect to PTOnet via file servers, which are dedicated computers that control the network's programs and peripherals and allow PCs to access the network.

In addition, there are a host of software applications that have been developed by users (primarily Patent examiners) for their own personal use -- and to share with colleagues. These applications do not run on the network and are not formally supported by PTO through training, technical assistance, maintenance and documentation. The proliferation of such homegrown software combined with increasing user demand for new, better and more tailored tools, has led PTO to establish a Matrix Team Project (Examiner Toolkit) aimed at capitalizing on individual Patent examiner-developed tools.

Last year, PTO established a number of matrix management teams to facilitate in the design and implementation of major automation projects. Each matrix team is headed by a user and a System Development Manager from the CIO. One of these teams, the Examination Toolkit Matrix Team, is dedicated to developing software products to assist examiners in using APS more effectively and to do their job more efficiently using automated tools.[46] The activities of this team are at the center of the office automation development activities in Patents.

The Examination Toolkit Project -- spearheaded by the matrix team established in January 1995 -- involves the design of tools specifically for Patent examiners. The project is intended to address the highly individualized research requirements of diverse

---

Borland Paradox and FolioViews. User initiated programs include Action Writer and the Patent Cooperation Treaty program (PCT). PTO is in the process of putting other user programs such as Form Writer on PTOnet.

[45]In January 1994, PTO established a group to define and institutionalize a standard system development life cycle management process.

[46]Other matrix teams include the Global Patents Matrix Team, the Desktop Workstation Matrix Team, the Classification Data Systems Matrix Team, the Text Search Replacement Team, the OCR Matrix Team, and the Biotechnology Matrix Team.

examining groups and art units, and to take into account the need for applications that reflect highly individualized research strategies. The matrix team intends to develop a process whereby some user-developed programs can become fully supported by PTO's information technology infrastructure.

Role of Automation in the Trademark Process[47]

Trademark operations were the first target of PTO's automation program launched in 1982 and TRAM became operational in April 1983. It was developed in-house by PTO's IS division working in cooperation with the Trademark Program Control Office.[48]

TRAM supports operations from receipt of a new trademark application to post registration activities, stores bibliographic data on pending applications and active registrations, tracks prosecution history, workflow, employee production, photocomposition of TMOG and registration certifications. Information on new applications is entered into TRAM during pre-examination and application movement is recorded using a bar code label on application file jackets. TRAM management reports are generated by the CIO, based on reporting requirements received from the Trademark group.[49] Approximately 98% of Trademark staff use TRAM at some point during their regular business day. The public is also able to access TRAM using terminals in the Trademark Search Library.[50]

TRAM operates on a Unisys A16 mainframe. Over 1,000 network devices are attached to the mainframe, including Unisys B-28/38 PCs, Datamaxx cathode ray terminals (CRT display), Welch Allyn BCRs and wedge devices, and dot matrix and laser printers. One TRAM terminal is placed in the common search area of each Law Office, as well as in strategic locations throughout Trademark.[51] TRAM user software

---

[47]The way automation is used in Trademark may change based on recommendations of a BPR team that has recently concluded "As Is" and "To Be" models for application processes. One major initiative is to lessen the examiners' load by transferring some standard search activity -- "batch searching" -- to the pre-examination process.

[48]Within the CIO there is a group solely dedicated to supporting Trademark systems.

[49]Trademark staff do not have the ability to do customized TRAM reports.

[50]PTO is mandated to make trademark data available to the public at the earliest possible date.

[51]Depending on where in the building -- and in the process -- a TRAM terminal is located, staff who use that terminal can only perform certain functions. While limiting mistakes, this situation also limits the extent to which clerical and administrative staff understand how their job fits in with other application processes and PTO's larger mission.

includes on-line data entry and text editing software developed by PTO. Approximately 1.2 million transactions are processed by TRAM each month. In addition, TRAM is connected to a voice response system that allows applicants to retrieve messages about their application's status and processes around 23,000 queries a month.[52]

While Trademarks eventually plans to automate its entire application process with the new Trademark Information System (TIS) that would replace TRAM and other systems, full implementation of TIS is not expected until the Year 2001. In the meantime, PTO has undertaken a program to redesign and enhance TRAM and move it from the mainframe to the client/server environment of PTOnet. Modern development tools, programming languages and relational databases will be utilized to provide users with greater feature functionality in a Windows-like setting. PTO expects full implementation of the redesigned TRAM in FY98.

In addition to redesigning TRAM, PTO has begun -- and expects to finish in early FY97 -- a program that will bring TRAM to every user's desktop over PTOnet. Currently Trademark staff use different devices to access various systems. While office automation (e.g., word processing, spreadsheets, E-mail) is available at the desktop via PTOnet, TRAM and X-Search must be accessed at special terminals scattered throughout Trademarks. In May 1996, the CIO successfully demonstrated TRAM and X-Search access over PTOnet. A deployment schedule is being negotiated by the CIO with Trademarks.

PTO also plans to develop a new Publication System -- for producing the TMOG from the desktop by integrating trademark text and designs electronically -- and a new PC-based NADES. The new NADES, to be implemented in FY97, will provide improved printing, spell-checking and verification, and a Windows interface.

As with patents, CRDA supports fee processing for trademark applications. The Finance Office uses CRDA to record fee collection (cash, checks, money orders and deposit accounts) associated with application processing or trademark maintenance. The information in CRDA is checked against NADES regularly. Trademark examiners and pipeline staff view CRDA displays to see which fees have been paid on a given application.

Besides TRAM, the other major information system used in Trademarks is X-Search.[53] X-Search is used by all of Trademarks' more than 200 examiners and by

---

[52]The Voice Response System, in operation since October 1992, supports TRAM and CRDA. Two lines are dedicated to CRDA and 10 to TRAM.

[53]Although examining attorneys have access to paper files of prior registered and pending trademarks in the Trademark Search Library, only a few of them use "the shoes" to supplement X-Search. Moreover, while there is great diversity in the use of APS on the Patent side, Trademark examining attorneys use X-

select Trademark managers and support staff (total staff approximately 450) to search applications, registrations and images using: 1) a text database generated from TRAM data and resident on a dedicated server accessed using an ORBIT search engine and 2) a separate database of design and drawing images. Trademark staff, primarily examining attorneys, access X-Search at PCs located in common areas, known colloquially as "bullpens".[54] There are currently 72 dedicated X-Search terminals in Trademarks, each of which is an industry-standard 486 PC loaded with the Microsoft Windows 3.1 operating system. X-Search terminals are connected to an Amdahl 5990-1100 mainframe via 9600 bit-per-second (bps) direct-connect serial lines and a separate Netframe server of cropped trademark images is also connected to the Amdahl and to X-Search workstations. X-Search workstations are connected to laser printers.

There are more than 1.8 million Trademark registrations and applications in X-Search,[55] known as Version 1.0, as well as some 600,000 trademark images.[56] X-Search processes around 113,000 search statements a month in sessions which last approximately 13.4 minutes on average. A maximum of 72 concurrent users can access X-Search at a time. Most examiners use X-Search regularly to review prior registered and pending trademarks.

X-Search replaced the T-Search System in July 1993. After the functional requirements for X-Search were first developed in July 1991, Trademark implemented X-Search gradually, first replacing the front-end of T-Search with a Windows 3.1 user interface to manage sessions and to display and print search results. A new image server subsystem was then installed to improve image file maintenance, image retrieval and image quality;[57] 486 PCs replaced the Burroughs B22 PCs used by T-Search; and laser printers replaced the old Anadex dot matrix printers. Users are now able to concurrently view both image and text.

Search in a fairly standardized way -- there is little need for customized search techniques and group-specific feature functionality.

[54]There are currently five "bullpens" in Trademarks. Although other X-Search terminals are strategically placed throughout the building, there are currently no X-Search terminals in the pre-examination area. This deficiency will be addressed once X-Search becomes available on PTOnet.

[55]Marks in X-Search go back approximately 100 years, though marks that were no longer active as of the late 1970s, "dead marks", can only be researched in paper files.

[56]Some 38% of trademark applications and registrations have an image associated with the mark.

[57]During pre-examination, the design is photocopied and sent to PTO's scanning contractor. The scanned images are written to tape and loaded onto a Trademark image file server, called X-Search 1. Trademark images are compressed and stored at 300 dpi resolution. The new image server has improved the response rate for viewing images from 11 seconds to less than 1 second. Images are tagged with a serial number and pulled off of the server after ORBIT has identified relevant marks.

Since first introducing X-Search Version 1.0, Trademarks has made a number of enhancements:[58] the ORBIT text search engine was copied to improve peak performance and increase the concurrent user limit from 30 to 60 users; a Text Summary feature was added to allow simultaneous display of multiple search result descriptions; an Image Summary display was added to allow images to be retrieved without corresponding text from ORBIT; and a Copending Application that allows searches for related cases.[59]

On August 15, 1995, Trademarks concluded implementation of a text file server that has improved X-Search workstation performance and decreased demands on ORBIT and the Amdahl mainframe. The text file server was developed as an interim solution to problems associated with ORBIT -- primarily slowness -- until X-Search Version 1.1 is implemented later this year.[60] Reports indicate that this enhancement has dramatically improved system speed, reducing the average search time from 18 minutes to less than 14 minutes. ORBIT will be replaced in X-Search Version 1.1, for which PTO issued an RFP in mid-1994. PTO hopes to have the new search engine in place by the Fall of 1996.

The primary objective of X-Search Version 1.1 is to increase the concurrent user limit from 60 to 300. The new system will be delivered to users via PTOnet -- allowing them to access it from their desktop -- and will provide minor functional improvements over the current version. The contractor selected for the project will replace ORBIT software, modify the workstation interface software and upgrade the image file server.

Trademarks has also launched a project to make X-Search available to examiners from the home. A small number of examiners (18) was selected to participate in the project. The interest in remote X-Search access came out of regular Trademark focus groups. Although the initial plan was to wait until X-Search Version 1.1 was up and running, Trademarks decided to initiate the "Work-at-Home" project since procurement for Version 1.1 was taking longer than expected. At the time of this

---

[58]Enhancements have been introduced based on suggestions received during regular customer focus sessions in Trademark. In addition, X-Search feedback boxes in each bullpen have generated some 100 suggestions to date, some of which have been implemented.

[59]Examiners are required to conduct a copending search prior to examination, identifying whether the applicant has a concurrent application. If this is the case, the latest application is passed on to the examiner assigned to the earlier application(s), thereby reducing potential inconsistencies in examination. The Copending System is accessible from desktops and X-Search terminals.

[60]One cause of this slowness is that ORBIT only sends 120 lines of data to the terminal at a time. The new text file server will send the relevant serial numbers to the server in batches of 120. The X-Search terminal will receive text more quickly with this configuration.

writing, however, there were still no examiners working from home and the pilot had yet to actually begin.

The final major automation tool used in Trademarks is office automation, or PCs connected to PTOnet and standard and custom-developed software. Most examiners, managers, administrators, and clerical staff have a 486 PC at their desk connected to the network (Trademarks has had access to PTOnet for two years). The primary PC tools used by examiners are word processing software and electronic mail.[61] To draft Office Actions and other standard communication, examiners use form paragraph templates and other forms available on network word processing software. Some examiners have also developed their own form paragraphs. They can also review some manuals -- such as the ID Manual of Trademark Classifications and the Trademark Manual of Examining Procedures (TMEP) -- on-line via PTOnet and FolioViews software.[62] Managers and administrative staff also use office automation tools to draft correspondence, prepare reports and track productivity and management (e.g., disciplinary) actions.

How Automated Tools Impact External Users

The same automation tools that support the patent and trademark application processes affect external customers ("the public") in many ways. The first major group of external customers impacted by PTO's automation tools are individual and corporate applicants along with their attorneys and agents. Although applicants submit paper applications, these forms are tracked on PALM and TRAM. Because these systems generate receipts when the application arrives and are referenced when applicants call for status updates, it is imperative that they are accurate and up-to-date. In addition, the accuracy of TRAM and PALM data affects the quality of information in the *Official Gazettes*.

TRAM is connected to a voice response system that gives applicants status updates over the phone. With 10 lines, the Trademark Voice Response System has been overloaded -- as many as 3,000 calls have been received on a single day.

X-Search and APS are also important to applicants. Patent and Trademark examiners use these tools to make decisions on patent and trademark allowance; it is essential that they be continuously available and up-to-date, and that examiners are trained on conducting thorough and accurate electronic searches.

---

[61]Examiners are not required to use PCs, and a small group of attorneys still send correspondence to Trademark's shrinking typist pool.

[62] TMEP is available on CD-ROM and FolioViews. FolioViews is a COTS product that allows the hypertext markup and electronic retrieval of documents over PTOnet.

Applicants are also impacted by the accuracy and reliability of CRDA. Deposit account holders can access CRDA's voice box system to get information on their balance and last transaction. They also receive regular statements about their account. Implementation of RAM by October 1996 will resolve the problem of redundant charges experienced with CRDA. RAM will have checks and balances to ensure that applicants are not double charged.

The second major group of external customers impacted by automation tools are users of the public search rooms in Crystal City and PTDLs across the country. X-Search and TRAM are available for public use in the Trademark Search Library, TRAM for free and X-Search for a fee. Any person with a legitimate need to access X-Search can become a certified user after attending and successfully completing a four-hour course at the Trademark Library. APS Text and Image Search are available in the Patent Search Room for a fee.[63]

PTDLs offer trademark and patent information to the public in many forms: the most recent *Official Gazette*; full text paper copies of patents back to 1790 and trademarks dating back to 1872, in some PTDLs; and X-Search and APS information. In addition, 14 PTDLs were provided with APS Text access for free for a three-year trial, which ended in December 1994. In January 1995, APS Text became available to the entire PTDL community for a fee.

The PTDLs' customers and the general public can also access the PTO Bulletin Board seven days a week, 24 hours a day, with the exception of Tuesdays from 7:00 a.m. to 12:00 noon, when data loading is done, and on ad hoc maintenance days, which are announced in advance. The system provides some searching and downloading capabilities of files on news, services, products and patent and trademark information. It also provides electronic mail access.

A third group of external users impacted by PTO automated systems are customers of PTCS, the automated order entry system that uses registration certification databases to fill public requests for copies of patents and trademarks.

A fourth group of external customers impacted by automated systems are companies which purchase, repackage and distribute patent and trademark information, primarily on-line and via CD-ROM. Patent and trademark products available on magnetic tape and CD-ROM include bibliographic, assignment and

---

[63]X-Search and APS Text both carry a $40.00 hourly connection fee and 25 cents per printed page. APS Image Search connect fee is $50.00 an hour. "Assisted searches" on APS cost $30.00 an hour. Trademark Library staff do not provide assisted searches but are on hand to answer questions.

classification information. Commercial information vendors that regularly purchase patent information include the Chemical Abstracts Service, Derwent, Dialog, Mead Data Central, and MicroPatent.[64] Commercial information vendors that regularly purchase trademark information include Corsearch, Imsmarq, Mead Data Central, NERAC, Thomson & Thomson, and Trademark Research.

A final group of external customers who have a substantial interest in PTO's automated systems are patent and trademark-related interest groups. Such groups include the International Trademark Association (INTA),[65] the American Intellectual Property Law Association (AIPLA) and the patent and trademark sections of the American Bar Association.[66]

PTO's Place Along the "Technology Curve"

When PTO first launched its automation program in early 1980, some of the systems envisioned for the agency were unquestionably pushing the state-of-the-art. For example, when the contract to build the APS was awarded to PRC in 1984, the project was considered to be one of the largest and most technically advanced automation programs in the federal government. The first production version of APS was built with cutting edge technology. In fact, the CRT resolution, dual-screen configuration and performance requirements for the image workstation were not available commercially, so the initial workstation had to be specifically developed for APS. Other components such as the mainframe, file servers, support processors, image storage devices and the communications network used the latest available technology.

Today, however, some of PTO's automated systems are outmoded, based on antiquated -- and often expensive -- technology and on concepts that are no longer appropriate. Many of the agency's major automated systems are currently based on *mainframe* technology. The subsystems of APS (Text Search, Image Search Directory, CDS) and X-Search are linked to an Amdahl 5990, and TRAM, PALM, and CRDA all operate on a Unisys A16 mainframe. Users of APS and X-Search must access these systems from *shared workstations*. And, most of PTO's automated tools have primarily *custom-developed software* components. The expensive, customized Image Search

---

[64] The European Patent Office (EPO) and the Japanese Patent Office (JPO) receive electronic Patent data through formal exchange agreements.

[65] As part of the Business Process Reengineering initiative (BPR), PTO's Center for Quality Services held a series of focus groups with INTA in 1994. The two major issues raised by INTA focused on the quality of Trademark examiners -- inconsistency in examination and lack of expertise.

[66] PTO's public advisory group was disbanded in 1993.

hardware and software has forced PTO to limit the number of examiners who can access this tool at the same time.[67]

Recently, PTO has begun to implement new approaches. For example, *networking* and *client-server* technologies have enabled greater access to mainframe databases. PTOnet was established in 1992 and has seen a rapid and continuous growth in applications. APS Text is available on PTOnet as is office automation software. TRAM is now available to some examiners and Trademark staff via PTOnet and PALM is accessible over the network to a select few. Issues related to security have slowed migration of PALM to PTOnet.

PTO is also migrating away from shared workstations toward *desktop access* to all PTO databases. Not only do all PTO staff who need a PC now have one, but virtually all of these PCs are hooked up to PTOnet. A new "Desktop Deployment Plan" was recently launched to deploy new desktop workstations that will have APS Image access as well as office automation capabilities. The PTO is planning a transition to Windows NT operating system at the workstation. This will replace the current Windows 3.11 and SCO UNIX workstation operating systems.

PTO is aggressively establishing *systems development standards* for technical performance, life cycle management, database management and document interchange. A new and exciting undertaking is the Generalized Image Service (GIS) project, which is identifying requirements for digital image access for APS, Global Patents, PAM, and TIS. GIS will introduce Standard Generalized Markup Language (SGML)[68] to allow the identification of separate parts of a document.

A patent marked up in SGML will be a compound document in which each component is stored in the most suitable format. Text components will be stored as machine processable text. Although most drawings will be stored as raster images, some drawings may be stored in machine processable vector format. Equations and formulas may be stored in specialized machine processable representations. SGML is in the process of becoming the international standard for tagging patent documents.

On an organizational level, some key changes have taken place at PTO to streamline the agency's Information Resource Management (IRM) policy and activities. First, the offices and divisions responsible for information system policy, development and implementation and operation have been reorganized. The CIO has been

---

[67] To illustrate this point, the first generation workstation cost $99,000; the second generation cost $64,000; the third generation workstation cost $16,000. The current desktop workstation being deployed to the Patent examiners cost less than $8,000 each.

[68] See glossary for further explanation of SGML.

established to oversee IRM policy and develop the agency's information technology plans. The Technical Plans, Policy and Oversight Staff; the Office of System Architecture and Engineering (OSAE); and the Office of System Development and Acquisition (OSDA) have all been placed under the CIO. In addition, ACTO (formerly OCTO) moved in 1995 from the Office of the Associate Commissioner to the CIO.

Within PTO, there is staff dedicated to working with the CIO --- and end users -- in system development, implementation, maintenance and technical support. Within the Patent group, these staff are located in SIR, particularly the Office of Search Systems. In the Trademark group, they are located within the Trademark Program Control Office.

New management techniques are also being introduced. The Office of Business Process Reengineering (BPR) was established in 1994 in order to review PTO's organizational processes and to develop a new vision for PTO operations using BPR techniques. Through the BPR activity, "As Is" and "To Be" models are being created for the agency's primary business processes. The way in which automation is, and should be, used in these processes is the heart of the BPR initiative.[69]

PTO also implemented a matrix management approach to information systems development in 1994. Over the last year, matrix management teams have been established to manage key information systems projects: Global Patents, Desktop Workstation, Classification Data Systems, Text Search Replacement, OCR (Optical Character Recognition), and Biotechnology. Each team is headed by a project manager from the business areas. The CIO provides the System Development Manager (SDM) who reports to the project manager for day-to-day support and to the CIO for technical direction. According to the 1995 *Strategic Information Technology Plan*, "end-user participation and involvement is crucial to the success of each business process reengineering and information systems project . . . Due consideration must be given to ensure that all internal, external and legal customer requirements are adequately reflected in the automated solution."[70]

PTO's Executive Management is committed to the goal of greater user involvement in system development. Unlike the early days of the agency's automation program when users were only brought in at specific points in the system development process, a number of strategies have been employed to invite broader participation in the process.

---

[69]Some PTO managers have criticized BPR initiatives for not sufficiently engaging end users in the development of the models.

[70]U.S. PTO. *Strategic Information Technology Plan: FY95-FY2000.*

Chapter 2: OFFICE AUTOMATION AT PTO

Office automation tools are provided via PTOnet and a suite of standard and custom-developed software through desktop PCs. Most examiners, managers, clerical and administrative staff currently have a PC that is connected to the network available to them at their desk.[71] Agency-wide, 92% of staff indicate access to a PC at their desktop; an additional 2% used shared PCs. Of those with PC access and/or use, 96% indicated they were hooked up to PTOnet.[72] The primary PC tools used by examiners are word processing software and electronic mail. To draft Office Actions and other standard communications, examiners use paragraph templates and other forms available through network word processing software. Examiners are also able to develop their own form paragraphs and review manuals, such as Trademark's ID Manual, TMEP and Patent's MPEP, through FolioViews software on PTOnet.

What PTO employees said about office automation

Several agency-wide initiatives, task forces and matrix management groups are currently underway which touch on various aspects of office automation. Many of these initiatives are producing significant success stories. There has been a constant flurry of activity at PTO over the last year and new applications are being introduced to PTOnet at an amazing pace. Recent deployment of desktop PCs has led to dramatic changes in the workplace; most employees with a genuine need for a PC now have one. In some cases, however, employees are equipped with older 386 machines, particularly clerical staff. While this is understandable given the size and scope of PTOnet, these older workstations can limit software capabilities because of their slower processing speeds.

The planned deployment of 700 desktop workstations scheduled to be completed by December 1996 should have a positive impact on Patents and Trademarks.[73] The 1996 SITP indicates that PTO will complete installation of PC-based text and image workstations to Patent and Trademark examiners by December 1997. In the past, seniority has been the determining factor in PC distribution -- which can, ironically, lead to the delivery of the best PCs to the people who use them least, while those who need more advanced equipment get stuck with older computers. Sources in Patents tell us that they have replaced the seniority-distribution system with a lottery,

[71]The Trademark group has had access to PTOnet for since 1993. The Patent Group completed near universal connectivity to PTOnet as of mid-1994.

[72] The actual percentage may be higher since 9% indicated they were not sure.

[73] According to sources in the CIO, 500 of the workstations will go to the Patent Office to support APS Image on PTOnet and 200 will go to Trademarks.

which may lead to a more optimal distribution of technology. Another 1,600 new machines (Pentium or the latest available) are scheduled for deployment in FY98. The near universal (93%) view that office automation has had a positive impact on PTO staff member's ability to do their jobs is a clear endorsement that staff want more and better computers to help them perform their work.

We asked most focus groups whether they felt they were significantly better off now than they were a year ago with regard to the availability and usefulness of automated tools; every group was quick to agree they were indeed better off. And, by most accounts, the introduction of new tools has gone surprisingly well, with only a few mishaps along the way.

Although some factions within PTO occasionally expressed nostalgia for "the shoes" and the "old way of doing things," these voices were rarely heard and even then with a parenthetical admission that the attachment to the past was far more a romantic notion than a realistic expectation. In fact, one supervising examiner noted that life would be "unimaginable" without the PCs. Rather than widespread nostalgia, we encountered an overwhelming appeal from users who were eager to reach a higher technological plateau, wanted more training on, access to and use of productive automation tools. There is clear demand for more technology than is now available to most end-users. This demand places increasing pressure on PTOnet and the CIO to be responsive to user needs.

The backbone of this success has been the upgrade from CCI to PTOnet and everyone describes the changes in words of truly glorious praise. Unlike the nuts-and-bolts CCI, PTOnet offers users a friendlier, more interactive software environment. Information is available on PTOnet in a way that is "faster and smoother" than its predecessor. This is due in no small measure to faster computers, printers and servers that support PTOnet. But it is also due to the availability of more powerful software like Excel, FolioViews and Desktop Procurement which, while imperfect, greatly facilitate and speed work completion. PTOnet offers users many more tools than those which were available on CCI, consequently, it affords them more dynamic and productive ways of doing their jobs. For example, on PTOnet, employees can:

- Exchange files and share commonly used information over the network.
- Route and track work more effectively and with less paper.
- Access information from mainframe applications, such as the personnel system, when needed for reporting purposes.

Although users say they experienced some initial problems with the introduction of PTOnet, the worst appears to be behind them. The most serious problems have faded away and been replaced by less critical issues. When PTOnet was introduced, users had to endure frequent -- and sometimes extended -- server "down time". Given the rapid growth and scale of PTOnet, such problems are not surprising. Ironically, these chronic problems, which were caused by the popularity and rapid growth of the network, attest in some way, to the success that PTOnet has had in linking the agency together.

The enormous popularity and widespread use of applications like E-mail quickly put a great deal of pressure on the fledgling network. Over time, as new and better equipment was added to the system, the bottlenecks were eliminated and the network became more stable. Still, focus group commentators were quick to list outages and network speed as problems, since a "crashed" or unresponsive server will impede them from completing work. Again, this is as an indication of PTOnet's popularity. Fully 96% of all workers with PCs report that they are connected to PTOnet, and the network receives relatively high satisfaction ratings (80% - 86%) in all categories except speed, which received an unfortunate satisfaction rating of 45%. However, with this worker dependence on the network comes an increasingly high -- even if unrealistic -- expectation for trouble free operation and fast system responses.[74]

Network performance can only be improved incrementally over the next four years. It has already begun with the recently completed COTS software standardization and upgrading, and will continue through the addition of new file servers, more contemporary PCs, which may be the near root cause of some of the slowness which users perceive, and the standardization of workstation operating systems to Windows NT. These projects are closely related to companion efforts to upgrade the communications backbone and introduce ATM devices and other equipment, which will be crucial to network performance as the size of the image database grows and universal access to these databases from desktop workstations becomes possible.[75] This type of image traffic requires considerably more bandwidth than PTOnet has now.

There remain, however, a few nagging problems with PTOnet that cause no small amount of disruption and irritation to users. The diversity of comments about PTOnet's overall functioning made it initially difficult to formulate conclusions about network reliability. But as interviews progressed, it became clear that the problems

---

[74] The CIO points out that the speed and reliability of the network should improve significantly once it completes the server subsystem replacement project in September 1996.

[75] The CIO estimates that the size of the image databases will increase from 6 terabytes to 20 terabytes in the next few years.

reported were often associated with specific servers, like Server #7. More or better servers may be needed to improve performance, and, in fact, are being deployed. In the meantime, user comments about file management and E-mail, such as the common user tendency to save all E-mail messages they receive, lead us to believe that better instruction on network file management may relieve some unnecessary pressure on servers and possibly speed up PTOnet as a whole. Also, administrative procedures, such as automatic E-mail purges, can be implemented to police harmful user habits.

The CIO recognizes that PTOnet's sub-system is deficient. Once the network infrastructure is fully reengineered and the server subsystem replaced, this problem should diminish. In the short term, installation of new file servers and the standardization of network software, scheduled for completion in FY96, should improve network operation. A complete overhaul is several years away, however, and in the meantime skepticism about network performance and fear that new applications will make things even worse are widely expressed. The CIO should take steps to allay these fears by better explaining the strategies underway to stabilize and strengthen PTOnet.

Inadequate training--a root cause of user misuse of the network--when coupled with poor communication among front-line often plays out in ways that disrupt PTO's entire operations from time to time. Management must elevate training to an entirely different plane (and develop procedures for PTOnet use) before this unwelcomed "network abuse" by employees will change. The 1996 SITP offers no remedial program because training is not within the CIO's jurisdiction, raising again the question of who has the ball on this issue.

The widespread introduction of E-mail has also been a huge crowd pleaser and, in the process, lured some otherwise hesitant users into the electronic world. Survey results confirm that E-mail is the most widely used information tool in the agency. More than 89% of PTO staff use E-mail, most (78%) on a daily or weekly basis and there is general agreement that it has made a positive impact. E-mail allows users to "attack problems" directly and reduce time lost playing telephone tag. Messages detailing a given issue can be sent directly to targeted parties without the loss of important details that often occurs when messages are conveyed through an intermediary. Moreover, E-mail gives message senders the ability to verify whether their message has been delivered and read (or at least opened up on screen). Finally, users can attach needed or related documents to a given message to provide recipients complete information to take appropriate action.

Employees could fail to use E-mail and PCs for two obvious reasons: they don't have access or they have some underlying resistance to technology. One technophobe attributed his resistance to the fact that "people designing the system don't understand just how dumb users can be." Indeed, any residual resistance to E-mail and PCs

appears to take place predominantly among employees who lack former exposure to computers and thus face a steep learning curve.

PTO must continue to find enticing ways to reach out to these employees and introduce them to new technologies. It must convince hold-outs to "buy in" to technology by demonstrating how it can reduce time spent on tedious tasks and expand the time for thoughtful work and meaningful communication. Many hold-outs assume that learning applications is more complicated than it really is and these misperceptions leave them unwilling or unable to budget time for training. Some admitted they resent having to learn new things or are skeptical of promised benefits.

All employees who require a PC now have one as PTO recognizes that in order for office automation to be fully successful, everyone must have this basic tool. The new workstations to be deployed over the next two years will further address this problem by upgrading PC capabilities agency-wide as everyone steps up to a better PC. But there is no guarantee that all employees will have PC access. The CIO suggests that kiosk facilities at selected sites might remedy this. As legacy systems are migrated to PTOnet, the CIO should plan to make such kiosks available to support staff without PCs who will need access to the legacy systems.

Communication about technology programs does appear to be a problem, as 54% of staff agency-wide expressed dissatisfaction about the information they receive concerning office technology. This issue also points to the tension between management and some labor union leaders, who have failed to completely embrace technology is a constructive tool. Focus groups revealed that there are few holdovers who fail to recognize the importance of computers and that many who use computers only lightly would probably use them more intensively and effectively if they were assured adequate training and support.

The popularity of E-mail has not come about without some companion problems and challenges. Reliance on E-mail has led workers to assume that once a message is sent, it has automatically been received and read. Often there is no follow-up on important E-mail messages until some time later when the network reports that a given message could not be delivered.[76] "Nobody ever uses the phone anymore," complained one supervising attorney. While this is positive from the standpoint of network development, the implication is that PTOnet performance must be near perfect.

There is considerable evidence that this is not the case. Due to frequent personnel movement and the time lag for changes to take effect, user addresses are

---

[76] PTO's Microsoft E-Mail system does allow users the option of specifying a "return receipt", which enables the sender to determine whether the recipent has opened the E-Mail message. Many users, however, were unaware of this feature.

not always up-to-date. Messages are sometimes sent to non-existent locations, to be later returned undelivered, and former employees who may have left months ago still have active E-mail addresses. This problem is compounded by a network that often conveys messages at a painfully slow rate. In the Fall of 1995, numerous users reported that E-mail reliability had deteriorated significantly. We were told by the CIO that these problems were the result of software upgrades and efforts by the CIO to clear additional space on existing servers. The problems were described as temporary and, in any case, will be definitively resolved by the installation of new file servers in FY96.

In addition to problems listed above, some users complain that they are inundated by useless E-mail and that there is no method of differentiating between "junk" and important E-mail messages, short of opening up each one. Finally, they noted that some employees send excessively long messages (one user sent a 50 page document), slowing PTOnet to a crawl. These problems are not, of course, unique to PTOnet's E-mail system, but represent another hurdle for management to address by better educating users about the purpose and limitations of E-mail.

The PTO needs an official E-mail policy. One has been in draft form since 1993. In the expanded, on-line documentation that will be available to end users, the CIO plans to include a section on E-mail maintenance and procedures. But until an official, enforceable E-mail policy is in place, users will continue to burden the network by sending useless "mass messages" and by accumulating months of old messages.[77]

Though, overall, survey respondents were satisfied with most aspects of the E-mail system (90% plus satisfaction rating on most attributes), training appeared to be the one area where a substantial proportion of staff could see room for improvement. Nearly one-third of respondents were dissatisfied with availability of training; a quarter with quality of training. Though 49% of staff indicated they had been trained on E-mail, despite its heavy usage, 20% of users described themselves as "beginners" or "novices" on the system and 16% as "intermediate". Since few (7%) of those trained had received advanced or refresher training, it is reasonable to assert that some staff feel the need for higher level training.

When looking toward the future, "office automation" often means different things to different people at PTO. Many employees speak of "office automation" as if it were a collection of supporting tools such as word processing, spreadsheets, E-mail, X-Search and TRAM, all of which are or will be on PTOnet. Others see office

[77] According to sources in the CIO, in May of 1996 the Business Council approved the "Rules of the Road," a document detailing the policies and procedures for E-Mail, the internet, electronic bulletin boards, records management, PTOnet usage, security and software use. This document is scheduled for distribution to all employees in July. Whether there is to be a corresponding training initiative is unclear.

automation as an integrated, seamless set of systems that could eliminate virtually all paper and ultimately automate the entire work process except for those aspects that absolutely require human intelligence and judgment. The differences between these definitions and the extent to which one or the other philosophy is embraced ought not to be minimized. Within the reconciliation of these two views lies both opportunity and challenge as PTO plans its automation future.

There is a belief among some that PTOnet will provide the platform for integrating all existing and future automated tools, but the strategy for how this will happen is less than clear and not widely understood by many commentators. The more common perception is that systems planners tend to look at technology situations on an issue-by-issue basis and design and deploy systems for discreet business functions and procedures.

If PTOnet does indeed become the platform that supports and provides access for all business applications, it will have to attain near-flawless reliability since all users will depend on its availability and accessibility. If PTO is to avoid disastrously unproductive down times, procedural and maintenance issues will become critically important and there will have to be greater understanding among users of network guidelines and limitations.

Few people we interviewed in the summer of 1995 could describe PTO's automation or long-term strategy. PTO employees we interviewed -- ranging from examiners to clerical staff and managers -- consistently reported they felt that senior executives simply did not know what to do about certain situations and, when pressed, admitted they had no easy solutions themselves.

This user misperception that PTO's senior-level management had no automation strategic vision undoubtedly is due to miscommunication between the CIO, other senior managers and end-users and appears to be more a public relations dilemma than a conclusion rooted in reality. The CIO's 1996 SITP contains a clear vision of how automated systems in the agency will evolve. For clarification, we will restate it here: "from 1996 - 2001, the PTO will focus on a strategic direction to develop an information technology environment for itself, its international partners, and the public, where Patent and Trademark information is created once, managed effectively, used often, and evolved over time to electronic commerce whereby most internal and external transactions are performed electronically and are accessible through the Global Information Infrastructure." With regard to the legacy systems, the CIO has clearly pointed to the need for PTO to "transition its information technology infrastructure to a standards- based open system environment." This applies - most specifically - to TRAM and PALM.

It is possibly true that CIO has yet to *affectively* communicate the vision outlined in the SITP to the very users and customers who will be effected by it despite some obvious efforts and apparent good will.[78] In any case, the perception persists and if this is to be combated, then the CIO must find innovative and interesting ways -- apart from producing voluminous reports -- to convey its vision. For their part, users must take responsibility to inform themselves and work with the CIO and management to ensure that information is distributed to them in a palatable and understandable format.

Many commentators expressed the view that until the Patent reengineering work groups complete their work, efforts to fully automate current business processes can only be piecemeal at best. The Patent reengineering work groups have finished the "as is" and the "to be" phases. They are now working on the transition plan and prototyping the new business processes. Despite this progress, however, members of our focus groups reported that while "something is going on," they had no clear idea of what projects were tied to what processes or how specific process reengineering projects would impact systems development. Also, it appeared to many that much of the reengineering effort was focused on higher management and had yet to penetrate into the lower environs where workflow issues have more impact.

Over the next decade, PTO will face the significant challenge of creating flexible systems that can incorporate the emerging flood of reengineering requirements demanded by ever-increasing workloads, increased globalization and the cascade of new technology. As it emerges to its expanded role of global leadership, with the possibility of a "government corporation" on the horizon, PTO will endure numerous changes to work processes that will have a great impact on office automation. But the agency does not appear to have an on-going management program in place to ensure that this review of business process changes is perpetually linked to systems development. And while this objective is clearly stated in the LCM documentation, it has not, according to CIO sources, been institutionalized.

Employees conveyed ample evidence to support the conclusion that until PALM and TRAM are replaced with Electronic File Wrapper successors, there will be no central "cable" around which the application pipeline can be fully and comprehensively automated. Every group that commented about these lifeline systems spoke with a mix of frustration and skepticism that things were likely to improve anytime soon. One commentator referred to PALM and TRAM as "systems stuck in amber." Others opined that PALM and TRAM have been consigned to the "back burner" and deprived of the agency's best programmers even though PTO must "live

[78] The CIO's efforts to publicize its Strategic Information Technology Plan include public forums for PTO employees, distribution of the plan over the network, in shared folders, so that employees with access to the network can download and read it, and publication of important plan highlights, including the overall vision, in PTO newsletters.

and die with these systems for at least the next seven years." Perhaps because they are admittedly obsolete, the agency has not -- according to commentators -- committed adequate resources to PALM and TRAM, despite their prominent place in the workflow of both Patents and Trademarks. There is broad agreement that PTO is reluctant (or unable) to dedicate resources either to train employees on the idiosyncrasies of these systems or to assign programmers or business area personnel to implement interim solutions that will improve application performance.

The long-awaited Electronic File Wrapper that will be part of PAM and TIS -- which has the ambitious goal of complete document management, integrating document reporting, tracking and retrieval into workflow processes -- will not be realized until the Year 2000 according to the current Strategic Information Technology Plan.[79] In the meantime, while some felt that the CIO lacked an interim strategy, equating it to a "deer frozen in the headlights," the SITP describes a strategy that will transform both PALM and TRAM into open-architecture systems and deliver them to users via PTOnet by FY98-99. Once again, the lack of communication between the CIO and end-users has left many PTO employees ignorant of the plans for these legacy systems. Many believe they will continue to work in the inhospitable COBOL environment, keying in 5-digit codes, until PAM and TIS are realized after the Year 2000.

The number of examiners with desktop PCs hooked to PTOnet has increased by several hundred and now includes the entire Patent examining corps. By virtue of being connected to PTOnet, examiners now have a wide range of office software on their desktop PCs and Patent examiners have full text search capability. In 1996, examiners are scheduled to have PALM and image access through PTOnet, plus better PCs. As mentioned previously, satisfaction with the availability of applications on PTOnet was quite high at 83%. Still, 45% of respondents said that increasing the number and types of applications available on PTOnet that would have high to major impact.

Many users complained that word processing and spreadsheet software on PTOnet is, in some cases, several generations behind commercial products on the market. Some users had more recent versions of software at home and felt constrained by the less sophisticated software they were compelled to use at PTO. In some instances, users installed their own software on their local drive to avoid frustrating conversion problems encountered when moving data between software generations. While understandable from a user perspective, this activity begins to undermine the effectiveness of a network, since more and more users will start to work off-line with unlicensed and unsupported software. The survey revealed that 55% of staff felt that upgrading applications over the network would have a high to major impact on their

---

[79] U.S. Patent and Trademark *Office Strategic Information Technology Plan for Fiscal Years 1996-2001*, December 1995

day-to-day productivity. This figure placed it in the middle range of desired enhancements and changes (See Chapter 6 *Quantitative Studies of Automation*).

In early 1996, COTS software on PTOnet was upgraded and standardized. A complete conversion to Windows NT in FY98 will go even further towards standardizing desktop workstation configurations and improving support. While all of this solves the immediate problems of transferring data among different software generations and of supporting software releases, it does introduce a training problem for those making the transition to MS Word 6.0 after an extended period using an older MS Word package. Again, this is another instance of the importance of training and the need for PTO to take training seriously.

While software available to examiners is increasingly impressive and mainstream, hardware is less so. Most employees who commented on this subject said that few Patent examiners had 486-level PCs at the time of our interviews. Employees claimed that they use older 386s, which are increasingly less responsive to the ever-expanding, graphics-intensive software being developed today.

To a large extent the survey confirmed this focus group finding. Clearly, there is a PC quality deficit at Patents if compared with Trademarks. While the majority (92%) of Trademark staff who could identify their PC processor type said they had a "486" PC or better, 59% of Patent staff who could identify their PC type had a "386" or lower and only 38% a "486" or higher. Though nearly three quarters of clericals in both offices were unaware of their PC type, lack of knowledge of PC type was substantial across most groups. More than a quarter of Trademark examiners were unsure of their PC type. Patent examiners were among the most knowledgeable about their PC type, only 9.5% indicated they were unsure. This is probably due, in large part, to the fact that many Patent examiners are engineers rather than attorneys, but the fact that 52% of all responding Patent examiners (90% of those who could identify their PCs) had "386s" or lower may also have made them painfully aware of the outdated state of their PC technology.[80]

In the course of hardware discussions, many employees grumbled that senior managers and executives with a less critical need for high-powered machines seem to always end up with the latest gadgets, while those with greatest need get cast-offs. They also say this "privilege factor" frequently comes into play among union employees as length-of-service rather than job-related need is the criteria for deciding who gets what. The deployment of 700 Pentium PCs by December 1996 followed by deployment of 1,600 more by December 1997 may help address this problem; however, there is no

[80] 65% of Trademark respondents had "486" PCs or higher; if "not sures" are factored out, almost 100% of Trademark examiners who could identify their PCs had "486s". According to sources in the CIO and within Trademark's Office of Program Control, there should be no 386 or 286 era PCs in Trademarks.

guarantee that all of these new PCs will be distributed based on need. In the past, *seniority* rather than *need* has been the determinant of PC distribution. Survey findings illustrated this point. About 86% of Patent SPEs and 79% of Patent "other managers" indicated they have "486" PCs, way above the Patent average of 34%.

There is also a wide variability of desktop PC make, model and settings, which creates problems. Undoubtedly, this is caused by different procurement efforts and is not unusual given the size and scope of PTOnet. Nonetheless, it poses a challenge to network administrators who want to upgrade to more sophisticated software, maintenance workers who must service an eclectic combination of hardware and to users who experience different levels of performance and reliability.

While the existing 386 PC equipment is adequate for now -- despite users' unsurprising desire to have the very latest technology on their desk -- its functional "shelf life" is nearing an end. The survey showed that 78% of survey respondents rated their PC as at least "adequate", 86% were satisfied with the operability of their PC. Even most of those with older generation equipment, such as Patent examiners, rated their PCs as at least adequate (72%) and were satisfied with its operability (80%). PTO's management will face significant challenges in replacing the equipment and responding to user demands as more and more applications are added to PTOnet and usage and expectations rise correspondingly.

Staff frequently reported that it sometimes takes as long as six weeks to provide PC connectivity when they change location. PTO appears to either lack standard procedures or effective coordination among the business areas and the CIO to support "switches and moves" in a disciplined and seamless way. According to many, personnel movement wreaks havoc with computers and E-mail addresses. Often, new installations and configurations destroy a user's "electronic past". Given the high volume and frequency of movement at PTO, this is a serious and annoying problem for many employees.

From a user perspective, the survey indicated that computer reinstallation after a move was problematic at Trademarks. More than one-third (37%) of staff were dissatisfied with the speed of reinstallation after a move. In Patents, the corresponding figure was only 14%. Overall dissatisfaction reached 19%.

There exists a common perception that only a handful of people are assigned to manage PTOnet -- several commentators specified that there were only four or five administrators, far to few pay close attention to the myriad of details to be attended to in the "switch and move" process. The CIO counters that the problem is due, not to a shortage of staff, but rather to the fact that too many people are involved in the procedure, making it unduly complicated. It further points out that often there is little notice before personnel moves, adding to the chaotic nature of the overall process. We

are told that an on-line application is being developed which will help PTO supervisors to better coordinate personnel movement and quickly alert the CIO, via E-mail, to upcoming changes. Although this may alleviate some of the problems, it would appear that the procedure for "switches and moves" should be re-examined and possibly streamlined.

The CIO's attempts to track initial PC placement after purchase and maintain an accurate inventory have been thwarted, in large part, because of the numerous switches and moves in between inventories. To rectify this problem, in 1996 the CIO began a program using handheld bar code technology to scan in ID numbers of all computer-related equipment in PTO. Ultimately, this will allow the Help Desk to identify and locate equipment and maintain a service record on each one. Still, the challenge will remain for the CIO to update and maintain this inventory.

Commentators mentioned that the procedures designating a unit liaison to communicate and track automation problems and needs to the CIO had broken down within many units and perhaps within the CIO. Users who encounter a PC problem call the Help Desk directly since the liaison may not be available at the time. This circumvention of procedure undermines continuity since the CIO depends on these liaisons to track chronic problems. Since non-liaison staff may not know who to speak to about a given problem, overall service is inconsistent. To address this problem, the CIO has taken steps to improve Help Desk responsivity, most importantly by implementing new software called "Expert Advisor". This application is designed to link PC-related problems to the individuals who report them and to the serial number of the afflicted equipment.

The survey revealed that the "designated liaison" procedure is not followed agency-wide. More than 70% of staff experienced a problem that required Help Desk assistance, but of these, 62% made the call themselves. Whether this represents a widespread break down of an established procedure or whether focus groups gave a distorted perception of the importance of this procedure is not clear.

In any case, sources in the CIO tells us that the traditional role of the user liaisons is to be radically transformed by the end of Summer 1996. In an agreement reached with both Patents and Trademarks, user liaisons will no longer be expected to retain all files on a given problem. This will be tracked by the Help Desk's Expert Advisor software application. Under the new agreement, liaisons will be redirected to provide individual users with a quick point of contact for problems or questions.

As the number of examiners with PCs connected to PTOnet has increased, a group of "power users"-- individuals who have the motivation and expertise to develop "home grown" software solutions for frequently encountered work problems -- has emerged. This has created a tension between innovative end-users

and the CIO. On the one hand, individuals and user committees have moved forward in "skunk works" fashion to produce useful tools that perform repetitive jobs effectively and, not insignificantly, without contractor expense. But these tools pose a challenge to CIO which is responsible for, and must be able to fully support, applications on PTOnet after the original designers may have left, lost interest or time.[81] Commentators responded by insisting that they are compelled to develop these tools because the CIO does not always -- or adequately -- respond to their needs.

Sources from all parts of the agency bemoan the dearth of effective communication between end-users and the CIO. Many identify this as a major reason for the proliferation of "home grown" software. Improving mechanisms for communication to ensure that reasonable specifications are promptly delivered to the CIO and that the CIO is then held accountable for a timely response, will eliminate the finger-pointing among organizations and prevent the delays that jeopardize strategic plans. It is important to understand that "home grown" tools are developed to solve specific business needs that end-users believe the CIO has not met. Therefore, the most creative examiner must fill the "vacuum" in his or her own way. Theoretically--in the Patent Office--SIR should have institutionalized these applications, but because of poor communications, this has not happened.

In the past, SIR has detailed Patent examiners who showed a talent and ability to develop software solutions from the end-user perspective; many examiners say that the resulting products, however, often tend to fall short of requirements. Most commentators felt that neither the CIO nor SIR adequately represents them. While SIR is presumed to represent Patent users by translating their needs into technical specifications meaningful to the CIO, commentators felt that SIR often embarks on its own projects and ignores the real, often mundane, interests of Patent staff. Some felt that SIR, rather than enhancing and expanding on automation issues, simply represents another layer of bureaucracy through which the urgency and detail of these issues is dulled and abbreviated. Some commentators felt it would be better to discontinue the practice of removing automation-proficient examiners from their unit since this eventually divorces them from day-to-day problems and issues confronted by users.

Training is as much an issue with users of office automation tools as it is across-the-board at PTO. Not surprisingly, commentators uniformly described training offerings as inadequate and untimely. Employees agree that a number of general training programs are available, but they say that getting into classes is not easy. Classes are often full at the time the training is most needed and employees

[81] The CIO also points out that "skunk work" applications tend to be poorly documented or, because of their design, are not effectively scaleabe over the network so that they can operate to end-user satisfaction.

have to sign up for offerings two or three months in advance, usually before they know clearly what their work load will be during the training period. By the time the classes occur, employees often have to cancel out at the last minute because of office-related emergencies, and the cycle of delay starts over again. In the meantime, they may already have need to use -- or indeed have begun to use -- the application for which they will be trained.

While enormous efforts may have occurred to design and deliver a system to end-users, the extra step of training, that may ensure success, is largely ignored. Inevitably, this comes back to haunt everyone in the form of lost production, network slowdowns, outages and people simply left sitting at their desks scratching their heads. PTO must develop better procedures and dedicate the time to allow employees to be trained on all of the equipment that they use.

Though training appears to succeed in getting workers started on the applications which they need, it appears to be too cursory and generic to foster a deeper level of usage. This problem is not unique to PTO and appears to be endemic to the training industry, which often must target group classes to the lowest common denominator. As a result, courses tend to spend too much time on basic topics such as using the mouse rather than more advanced tools, such as using styles in word processing programs and functions in spreadsheets, that may generate the greatest gains in performance and productivity. In general, there appears to be a dearth of advanced courses and users are left to fend for themselves at these higher levels of usage.

Since generic training courses fail to address the more complex issues that users deal with when using software for their work, workers trying to implement more advanced solutions to improve productivity may be left with work half-done when they hit a roadblock. Often they may have to devise creative means to circumvent a problem, resulting in time lost and lower quality work. At PTO, there appears to be a complete lack of point-of-need, on-demand user support for commercial software. The Help Line is not geared towards supporting commercial applications. In addition, PTO employees report that they do not have access to the support lines provided by software manufacturers, such as Microsoft. Employees also report that they do not generally have manuals available for applications they use. The only recourse they appear to have is to enroll in advanced courses, if available. But again, this route rarely provides a timely solution and may not address the user's specific concerns since courses tend to be generic.

To respond to this problem, the CIO is currently working with the contractor who staffs the Help Desk to develop procedures and deploy appropriate personnel to ensure that end-users who call the Help Desk receive definite solutions to software-related problems. In the event that Help Desk staff cannot resolve the problem, it will be

escalated directly to the software manufacturer (this procedure should be in place by the end of 1996). The CIO is also trying to reduce the number of people involved with a given problem, which tends to add time to the resolution cycle. This will be done by accurately tracking and monitoring hardware and software throughout PTO, so that scattered unit liaisons do not have to do so, and by implementing a better phone system to handle the increased caller volume. In addition, the CIO is working with the Help Desk contractor to address changes in the skill set of the support desk staff (with respect to COTS software), as well as the quantity of staff available to respond to customers.

Finally, to address the lack of documentation, the CIO is dedicating a file server on the network for storing information related to all software applications at PTO. All users on PTOnet will be able to retrieve this documentation, or any subset thereof, whenever they need it. This would be an improvement over the current practice in which software manuals are distributed on a one-to-one basis to the units as a whole, rather than to the individuals. Still, it is incumbent on the CIO to alert users to this new service.

Because of inadequate formal training, a lot of learning takes place through informal channels -- either through colleagues or self-learning. Perhaps even more so than for other computer tools, users of COTS software are usually left to fend for themselves and say they are able to do so successfully only in haphazard ways. For those employees who have used commercial software tools elsewhere -- at home or at previous jobs -- they transport their skills (at whatever level) into PTO and at least some of them become front-line teachers of their colleagues. But because so little on-going training is available, even software sophisticates can quickly get behind the learning curve as new releases are introduced and no one -- even veterans -- can figure out how to use new features. A handful of pioneers or exceptionally motivated individuals who can master new software on their own sometimes train a few disciples who pass the word on a catch-as-catch-can basis, but this pedagogical process does not reach as far or as deep as it should.

For employees who fall outside this informal chain of apocryphal wisdom, the struggle is more frustrating. Many say they lose countless hours trying to master programs on their own -- when a timely four-hour course or, even better, a colleague close at hand who could respond to specific questions when asked would have helped them overcome hurdles. But even collegial information sharing as a primary learning tool does not always work, especially when employees move between work groups and find that software is not consistent. Servers may have different versions of software. This diversity obviously creates challenges in transferring files and adds yet another element to training requirements. Still, as PTO standardizes its software across the network, this particular problem should recede.

Procedures for allocating training opportunities and for keeping employees informed about upcoming classes vary widely throughout PTO. Some managers are not convinced of the usefulness of training. Employees say that in some groups, getting any training at all is almost impossible because production requirements drive training decisions. They say some managers simply "have an attitude about training" and will not approve the time, even when courses are available. Others said that getting into training is often the result of an individual manager's persuasive talent or "connections", so that whether an individual gets training is more likely to be determined by criteria other than genuine need.

The situation is further complicated by the fact that employees say there are no standard procedures for actually finding out whether or not someone has been accepted in a given class. We heard several anecdotes about someone working through all the approvals necessary to get training, only to learn after the fact that they had been assigned to a class but never told about it, or told too late. A single, centralized unit must take responsibility for ensuring that employees throughout PTO are uniformly trained. As it stands, the level of training and computer expertise varies among groups, depending on staff skills and the supervisor motivation.

Inadequate training impacts network performance and has far-reaching results other than that impacting employee morale and productivity. An optimally functioning network requires users to adhere to rules that reduce the chance that they will cause overloads, introduce viruses, compromise security or affect network operations in a host of other ways. Focus groups gave some examples where poor user habits negatively affected network performance.

- In one instance a user caused a system crash by attempting to send an E-mail with a 50+ page attachment.
- Many users talked about their colleagues tendency to retain E-mail messages (intended for immediate, informal communications) for months, even years. Often this was due to ignorance concerning deleting files, but sometimes it was a reflection of the "just in case" syndrome.
- The ease with which users can address messages sometimes causes them to be less selective in designating recipients. Besides cluttering user mailboxes with unwanted mail, messages with numerous addressees can slow down the system's processing of E-mail.
- It was not apparent from focus groups that PTO had any procedures or software installed on the network to check diskettes for viruses before they can be used on PCs connected to PTOnet. In addition, some users have introduced non-approved programs into shared network file folders. Though no specific instances of network failure can be traced to this lack of vigilance, these practices raise the chance that major systems problems will occur.

When equipment and software fail, employees say that far too many contractors are involved in getting problems solved. The problem frequently starts with the Help Line, whose harried staff often fail to record problem descriptions completely. As a result, the dispatched contractor has limited information on the problem and may not be a specialist in that problem area. Consequently he or she must call the office to have an appropriate specialist sent some time later. Hopefully the next person will be the correct one, but since specific computer problems can spring from a variety of causes, sometimes the user will have to endure a number of visits over an extended period before the right person is sent out.

"I call one of my vendors Mighty Mouse" said one employee. She reported that it was not unusual to wait several hours or days for a contractor to appear at her desk to look into a problem. A contract-employee would then arrive, pick up the mouse, scrutinize it and proclaim "Yep, it's not the mouse" and depart. It seems that mouse-related problems were that contract-employee's particular specialty and if the problem did not pertain to the mouse, he could not help.

PTO support contractors and CIO employees often have difficulty with computers that have been customized by users. In addition, some contract employees are bound by contract specifications, which may require them to support only certain hardware. Though often not voiced openly, the subtext of some focus group comments appeared to be a feeling that support personnel and contract employees "pass the buck" amongst each other. Working on fixed contracts, a contractor's inherent incentive is to limit activity to increase profit margins. Therefore, on trouble calls where the problem's source may be multiple or ambiguous, they have an understandable vested interest in picturing the problem as the domain of another contractor. Certainly we were not on a quest to substantiate, or even investigate, these subtle implications. But in any case, contractor accountability needs to be strengthened through more rigorous performance measurement and reporting.

The CIO has taken significant steps to improve its service quality in this regard. Among other things, it has upgraded the Expert Advisor commercial software that it uses to record and identify problems and launched a sweeping computer inventory project. This will enable Help Desk staff to not only record problems accurately and track contractor response time, but also to perform basic diagnostics to try to remedy the problem. In addition, the CIO is in the process of consolidating its hardware and software maintenance contracts so that a dispatched contractor will always be responsible for correcting the problem, regardless of its origin.[82] This should eliminate sending the wrong contractor and "passing the buck" among contractors. Still, while the Expert Advisor tool is helpful, it remains to be seen whether contractor performance requirements are rigorously enforced by the CIO.

---

[82] This consolidation is scheduled for completion by Summer 1996

Finally, new PCs, with standardized PTOnet software including the Windows NT operating system, should create more uniform work stations that are more easily serviced and supported by contractors and the CIO.

Help Desk service is inconsistent. Some focus group commentators felt that service had improved recently while other described a decline. This discrepancy in perception about the quality of support appears to be due, in large part, to a procedural breakdown in which some employees know effective support staff members, while others make due with whomever picks up the phone. In the past, procedure dictated that each unit designate a liaison to communicate issues to the Help Line. Often this procedure was ignored, since liaisons were often unavailable when problems occurred, compelling users to call the Help Line directly. Unfortunately, users may not have known the name of the Help Desk person who had worked in the past with the liaison during similar problems. This led to inconsistent service and may account for the lukewarm satisfaction rating that the Help Desk received in our survey. Overall satisfaction with Help Desk service reached 73% agency-wide (77% and 66% for Patents and Trademarks, respectively).

Commentators also noted that the Help Desk places too much responsibility for tracking chronic problems on the end-user. Some computer support liaisons take the initiative to record, in log books, all Service Numbers assigned to their unit whenever a problem is reported. This is done so that the liaison can reference related service problems and thereby provide a measure of continuity for chronic problems. But commentators complained that this shifted too much work to the end-user and left little or no responsibility with Help Desk staff. Quality and efficiency of service depends, to a large extent, on the commitment of the liaisons, whose work priorities may lie elsewhere.

Under the new Help Desk operation, the lengthy chain of people involved in resolving a given hardware or software problem will be greatly reduced. Users will report problems to the Help Desk directly rather than through liaisons. In the event that the Help Desk cannot resolve the problem, it will contact the manufacturer. Problem tracking and historical information will be entered and maintained in the Help Desk's Expert Advisor software. User liaisons will no longer be expected to retain records on the problem.

The use of a service number as the primary means of linking related problems was also criticized. Some commentators noted that a better method would be to use the unique computer serial number as the primary number and then link the service number to the serial number. This would allow Help Desk staff to develop a service history on each piece of equipment and thereby identify computers with chronic problems. The CIO tells us that this problem will be addressed through the upgrade of

the Help Desk's Expert Advisor software in tandem with developing and maintaining an accurate inventory of all hardware and software throughout PTO. Problems will be related directly to specific equipment, rather than to an abstract sequential service number.

Finally, most commentators felt that Help Desk services were limited to basic operations. There was no support for advanced users who encountered problems or difficulties using complex software features. Since employees are not allowed to contact software manufacturers like Microsoft directly, they feel that they are deprived of needed support when attempting to expand their software knowledge to include more sophisticated functions.

Plans are being developed and implemented for restaffing and restructuring the Help Desk so that it can provide "point-of-need" support for hardware and software questions. The CIO is currently negotiating a contract to enable Help Desk staff to call manufacturers directly, in the event that a problem exceeds their expertise.

Despite these improvements, there remain a number of impediments to the CIO's ability to improve network service to its end-users. First, it remains to be seen whether PTO can *sustain* an accurate computer equipment inventory due to large-scale personnel movement and the decentralized process of purchasing and installing computer hardware and software. Second, CIO staff is unable to accurately monitor vendor performance. While "Expert Advisor" tracks response time (i.e., first report of a problem to final repair), reliable sources indicate that these figures are very "problematic" and not much help in accurately assessing whether contract stipulations are being met. Third, the Help Desk has been unable to accurately monitor total incoming call volume or break it down by category. This incapacity prohibited the CIO from planning proactive maintenance strategies based on past evidence and from making a convincing case to PTO management of the need for more support resources. Hopefully, the upgrade of Expert Advisor will help address this latter problem.

Employees complain that service vendors are not fully meeting obligations. While vendors generally manage to contact users within 2-4 hours after a problem is reported, a site visit to correct the problem often takes days and in extreme cases weeks. Adding to this frustration is the fact that the first vendor on the scene may not have an adequate understanding of the problem and may be unqualified to address it.

The implementation of the upgraded Expert Advisor coupled with service contract consolidation to ensure the dispatch of appropriate personnel to a site within agreed-upon timeframes, will lay the groundwork for resolving this complaint; it remains to be seen, however, whether PTO will adequately monitor and enforce service agreements. In any case, the important measurement is whether end-users -- the real

customer -- had the problem resolved to their satisfaction. The CIO still needs an enforcement mechanism that relates end-user evaluations of performance to service-level agreements and related contractual obligations. To this end, the CIO has joined with the Center for Quality Services to implement customer evaluations and feedback on contractor performance and the overall quality of computer-related support.

Some observers complained that the CIO has gone overboard in its insistence on strict adherence to LCM standards -- sometimes requiring several hundred pages of supporting documentation -- before it will allow release of user-developed software on PTOnet. Commentators felt that voluminous documentation for any kind of automated utility tool discouraged innovative end-user thinking. Because the time and effort needed to understand and complete LCM documentation is enormous, even in its streamlined version, some users feel that it is too much of a time commitment.

Users feel that the form-intensive LCM process deprives the CIO of an opportunity to view and discuss prototype applications that users design to meet everyday needs and it has, in some cases, contributed to end-user perceptions that the CIO is non-responsive, bureaucratic and uses mechanisms like LCM to quash grassroots development efforts. It should be noted, however, that from the CIO's perspective, LCM is a crucial instrument for measuring the impact of proposed software applications on PTOnet as well as a mechanism that allows them to adequately support existing applications. Without this documentation, CIO staff believe they would have no means of fathoming the myriad components of PTO's complex software systems.

The struggle over LCM standards is another byproduct of miscommunication between the CIO and the rest of PTO. Users want to be able to quickly develop software tools that will meet their needs; the CIO wants and needs to be able to support these applications in the future. The valid concerns of both sides should be plainly understood. While the rigors that LCM imposes are essential and here to stay, every effort should be made to reduce paperwork and the time required to complete this documentation, without destroying its original purpose. Users must be made to understand that the LCM process is the instrument through which the essential intellectual work associated with system development must be performed. It is the means through which abstract requirements, voiced in meetings and discussions, are tested and translated into the kind of detailed specifications that are needed by the CIO to develop these applications. The challenge for the CIO is to make users understand that LCM is an intellectual mechanism, as well as a technical platform, for realizing new applications. Users should be discouraged from viewing the LCM process as a tedious obstacle between themselves and the applications they want. Towards this end, the CIO has produced a streamlined version of LCM documentation to facilitate rapid application development, but other remedies, such as on-line availability of documentation, should be considered.

Commentators complain of having to remember too many passwords to access various research tools and other systems. Although they recognized the need for security, some felt that the PTO should invest in software that will allow users to log into multiple systems using a single password. Current security procedures seemed excessive to most users, since they require password changes too frequently (for all of their four or five passwords) and prevent reuse of passwords.

Plans are being made to create a universal log-on for most network applications by FY98, which should improve the situation. However, the problem cannot be eliminated entirely because legacy systems and other proprietary software have their own security systems that are, necessarily, separate and apart from PTOnet. Still, every effort should be made to reduce this inconvenience as much as security standards can allow.

With the addition of new users and new applications on PTOnet, many commentators expressed concern that PTOnet is not keeping up with the demands placed on it for stability, bandwidth and speed. Although PTO is approaching the 40 server mark, many say that is "not enough." Many users commented that during peak periods, PTOnet slows down noticeably to levels that frustrate their work efforts. After lunch, PTOnet slows to a crawl as returning workers check their E-mail messages. The low 55% satisfaction rating of network speed confirms this concern. In addition, memory consuming applications operate with difficulty on PTOnet. One example is the Identification (ID) Manual. A large, useful Excel spreadsheet that is now converted in FolioViews, the ID manual was slow partly due to its enormous size (approximately 500 pages). Such large and widespread applications undoubtedly contribute to slow network speed and lead to the frustration that was demonstrated in the focus groups and in the survey.

According to some informed observers, network planners did not build in sufficient (if any) excess capacity to account for network growth. With capacity pegged at an assumed fixed level of usage and no (at least reported) contingency plan for growth, PTOnet rapidly exceeded expectations. This problem became quickly apparent with E-mail, where usage was far greater than foreseen. Efforts to fix the problem exacerbated it, causing crashes, down time, misdirected mail and general confusion.

In addition to hardware concerns, commentators explained the alleged capacity problem as a symptom of laxity in network management and focus groups produced what employees saw as examples. Network administrators have apparently not incorporated timed automatic E-mail message deletes, a standard feature on some networks. There is little evidence that users are encouraged to or instructed about deleting old E-mail messages. Many focus group participants indicated that they or some of their colleagues did not know the steps for deleting messages. In addition,

users have had no training in file management. In fact, some users were encouraged to save everything to the network without the concomitant instruction to purge old or unneeded files. This combination of messages has the inevitable effect of overloading the network.

In the current environment of ever-accelerating technological change, network administrators can perhaps be excused to some extent for failing to foresee and account for all possible contingencies, but future planning should learn from past lessons. Though exact capacity is hard to predict, the need to leave room to grow above expected levels, provide flexibility to add extra capacity when needed and set procedures for capacity management is not.

Chapter 3: SEARCH SYSTEMS AT PTO

A number of automated tools support the work activities of PTO professionals who are responsible for searching records of extant patents and trademarks to determine the "patentability" of a new application. Both Patent and Trademark examiners routinely use word processing, analytical and -- to a lesser extent -- graphics software to create administrative records and perform other job-related tasks. But the most important tools that they use on a daily basis are the search systems: APS, in the case of Patent examiners; X-Search, in the case of Trademark.

The core responsibility of examiners is to ensure that a quality review is accorded every patent or trademark application -- a mission that would be far more formidable without modern search technology. In a study conducted last year, Patent examiners described APS as an essential tool without which they would be hard pressed to perform their mission, despite the fact that at least eight of ten still use paper records in virtually every search. Trademark examiners are even more dependent on search technology because Trademark systems have nearly universal utility in trademark examination. Dependence on X-Search is borne out by survey results: 93% of all Trademark examiners use X-Search several times a week to several times a day. Only 71% of all Patent examiners use APS Text and only 24% use APS Image with equivalent frequency.[83]

What Trademark examiners say about X-Search

Although Trademark examiners rely on various automated systems in the course of performing their jobs, they say X-Search is the one system upon which their survival depends. While examiners use TRAM and other tools for essential administrative support, X-Search is where examiners perform their intellectual work. X-Search is, therefore, the heartbeat of automation for the Trademark examiners. Work can proceed when word processing software falters and even when TRAM is not available, but when X-Search fails, examiners risk being stopped dead in their tracks. Because interruptions, delays or breakdowns impact productivity so obviously, dependency on X-Search cannot be overstated.

Fortunately, Trademark examiners generally give X-Search favorable reviews for its overall functionality and design. X-Search has incorporated user-friendly modern features and examiners particularly singled out the Windows environment as a welcome improvement over the old T-Search. They also cited the "hit list", which displays the results of a given search and allows the examiner to widen or

[83] Because of Trademarks' dependence on automation, they were the ideal candidate for the "Work at Home" pilot project.

narrow their search, and the ability to print multiple trademarks concurrently in a custom format as recent positive improvements. Survey results confirmed the general feeling that X-Search is relatively easy to use: 75% of Trademark examiners gave the system positive marks for "overall ease of use."

For the most part, examiners are satisfied with the accessibility of terminals in their immediate work area. Examiners say they have easy access to cluster terminals. They clearly welcome a future in which they can perform searches from the desktop, but we heard no mention of a lack of access to terminals in the focus groups. This may be a result of PTO's decision to duplicate ORBIT in a parallel configuration -- a process that allows an increase from 30 to 60 users at any given time.

While the survey confirmed that X-Search terminals were widely available for use throughout Trademarks (88% of examiners were satisfied), response regarding accessibility of terminals (how close they were to the examiners office) were poor, with only 62% satisfaction. Perhaps the ever increasing number of applications available via the PTOnet has increased expectations of direct and easy access.

Trademark examiners rarely complained about X-Search system failures but expressed concern about its operating speed. Focus groups conveyed little evidence of system outages that had a negative impact on their work. For most commentators, systemic failures appear to be transparent and to go virtually unnoticed. This is in sharp contrast to survey results in which X-Search's "Reliability" (which measures the downtime and other system problems) scored a lukewarm 67% satisfaction rating. It is possible that this is a reflection on PTOnet, since Trademark data (images and text) reside on PTOnet servers. Outages to those servers would obviously affect X-Search performance.

At the core of examiners' criticism of system performance is the time wasted waiting for the system to cough up search results. There are two specific aspects of these delays: "flip time" and "retrieval time." Flip time is simply the time it takes to view those trademarks (or "hits") which X-Search displays as the result of the user's search commands. Retrieval time is the time during which X-Search locates -- on the image server and on a separate mainframe -- and downloads trademarks that meet the user's search criteria.

For examiners, their central complaint was not flip time, but retrieval time -- a problem that becomes increasingly difficult as the sheer number of records grow. ORBIT searches through the records to guarantee that examiners see all appropriate trademarks. In addition, ORBIT acts as a "traffic cop" between the mainframe -- which

contains text -- and a separate PTOnet server which holds the graphics images.[84] At the time of our interviews, examiners told us that a "typical" search series on a given application required approximately 20 minutes, resulting in a tremendous waste of productivity and no small amount of frustration and aggravation to examiners working under strict production quotas.

But data retrieval time has improved significantly since our interviews due to an August 1995 system enhancement. In addition to upgrading the file server and duplicating text, the X-Search software was reconfigured to match text and image serial numbers. This has dramatically reduced the time it takes to retrieve data for a given search from more than 17 minutes to less than 14, and while hardware is conveying data at more or less the same rate of speed, the mechanism is much faster.

As more and more users log on, they report that system responsiveness diminishes as the ORBIT engine reaches its maximum user limit. It is at these peak usage periods -- when every terminal is churning away -- that the rare outage is likely to occur. And as the system slows, other searching problems are inevitable as impatient examiners "telegraph tap" on their keyboards trying to hurry the system along, only to unwittingly introduce unintended commands that cause the system to skip over documents they had wanted to view. The examiner experiences this result as a system error, not realizing that their own impatience and lack of understanding is the root cause of the unwanted outcome. This may contribute in part for X-Search's low "Reliability" scores on the survey. Slow periods reportedly occur at somewhat predictable intervals: from 8 to 12 in the morning and 2:30 to 5:30 in the afternoon. Examiners who are motivated to escape this frustration get their best work done between 6:30 and 9:00 a.m. on weekdays and on weekends.

Even with the August 1995 X-Search reconfiguration, the system continues to slow during peak periods, which may be due in part to network speed. Our survey results confirmed the continuing problem with speed of response: 44% of examiners expressed dissatisfaction with this aspect of X-Search's performance. Some sources in Trademarks hold out hope that Version 1.1 will address some of the slowness problems and reduce searches from a 1995 overall average of 17 minutes, from log-on to log-off, to closer to 10 minutes. However, other Trademark officials told us that they did not anticipate any further increase in speed beyond what had been gained from the August reconfiguration.[85] In any case, it appears that examiners will have to wait a while for Version 1.1, as we were informed that implementation of this new system would not occur until after the Summer of 1996.

---

[84] The configuration for X-Search changed following our interviews with Trademark's X-Search users.

[85] The primary objective of X-Search Version 1.1 is to increase the number of concurrent users to 300.

Desktop deployment of X-Search over PTOnet is viewed as an exciting and productivity-enhancing event among examiners. X-Search on PTOnet will greatly broaden examiners flexibility in performing their job. Once this happens, examiners will have the opportunity to access the system from remote locations for the first time. Trademark examiners are disadvantaged relative to Patent examiners in the proportion of their work that can be accomplished from their desktop, without time consuming and attention breaking walks to remote terminals. Only 13% of Trademark examiners said that virtually all of their computer work can be carried out from their desktops, contrasted with 56% of Patent examiners. Of all survey respondents in Trademarks, 78% indicated that placing X-Search on their desktops would have a high to major impact on their day-to-day productivity. This percentage was even greater for Trademark examiners (86%). On the whole and for Trademark examiners, this was the most desired change or enhancement that respondents were given to rate.[86]

The introduction of X-Search Version 1.1. will not solve a large and looming problem: the nagging presence of image and text data entry problems that result in missing or erroneous elements in the trademark database. Second only to speed-related problems, examiners complained that text and image data entry is not well coordinated. Managers we interviewed were quick to support these observations and explained that they resulted from a lack of quality supervision over the trademark image scanning procedure.

The root cause of this problem was the circuitous process in which trademark *imaging* was performed independently by a contractor located in a separate building.[87] This process was entirely separate from *text data entry,* conducted within Trademarks and under the purview of its managers. The divergent workflow between image and text resulted in 14-day lags between the time text appeared on X-Search and the corresponding images could be retrieved.

There have been a number of procedural changes which have improved the speed with which text and images are loaded into X-Search, although a lag time still remains. Trademark managers told us that they had introduced an interim remedy by creating an in-house tracking log that provides an ongoing record of what has actually been sent to the CIO on any given day. To redress the long-term problem, Trademarks has modified its Service Level Agreement (SLA) with the CIO to specify an acceptable

---

[86] Note that percentages are calculated based on those for whom each question was relevant. Those who did not answer, or who checked "not sure/doesn't apply" were not counted.

[87] Image processing under this system was cumbersome. Procedure required that all documents be imaged, bundled and then transported to a building located in the same office complex as the CIO. The images were scanned there and ultimately appear on designated servers. ORBIT then extracts the images for distribution through X-Search.

time frame for loading images into X-Search. It remains to be seen whether the SLA will be adequately enforced and upheld.

In an apparently unrelated and even more troublesome situation, examiners say that images associated with well-known and long-established trademarks are sometimes missing and unaccounted for -- an outcome which underscores the extent to which orderly procedures and quality supervision is missing. Missing records from X-Search were viewed by survey respondents as a severe problem. Fully 54% of X-Search users were dissatisfied with missing records in X-Search's database, 64% of Trademark examiners.

Unfortunately, the data entry errors made in this early stage remain in the system downstream with considerable impact on the examining process. The survey revealed that data entry constraints and the resulting not-easily-correctable errors are a continuing, major problem. In fact, data entry errors can effectively nullify an application or registration by making it irretrievable in the search system. More than half of Trademark examiners viewed the lack of editing tools as a problem. An equal proportion of Trademark examiners were unhappy with data entry errors in the TRAM/X-Search database.

The CIO plans to deploy an integrated PC-based NADES by FY97. This application will include a Windows interface and features such as improved spelling and edit checks that will make data entry easier and more flexible. These improvements should help to reduce initial data entry errors in TRAM and further down the line in X-Search, which uploads its data from TRAM. Additional features to enhance the flexibility and accuracy of data entry, such as edit checks and diagnostics, are certainly feasible once TRAM migrates from the A-16 mainframe. This should go a long way towards addressing this problem, although it will probably not solve it, since spell checking will not correct names, Boolean values, dates and intentionally misspelled marks. The quality of the data input into these systems will ultimately depend on the level of quality control exerted in Trademark pre-exam.

Examiners also complained frequently that when they enter a search command, but later realize they have entered the wrong word, they have no way to correct their mistake. The inability to "break" or interrupt a search was no small source of annoyance to examiners, particularly those familiar with the old T-Search system. The problem improved with the August 1995 X-Search reconfiguration since the system processing time has been reduced, but will not be fully resolved until implementation of X-Search Version 1.1 in Fall 1996. Version 1.1 designers are considering including a "stop search" button, but also believe that the system's speed, following the August '95 reconfiguration, may be such that examiners will be unable to interrupt a search before the results appear.

Examiners frequently raised problems related to the fact that an overhaul of the Trademark design coding is long overdue. They say the current coding is too broad in some cases, not nearly detailed enough in others and often archaic and no longer useful. As examiners begin a search, they must initially classify a mark according to their best interpretation of the coding category to which it pertains. The relative obtuseness of the coding schema causes examiners to use overly complex search strategies to yield desired results. Examiners point out, for instance, that the coding used to evaluate "computers" 20 years ago has virtually no applicability now.

Examiners also point to categories that are too broad and cite "man wearing hats" as an example of a classification that is too all-encompassing. When an application happens to fall within that general parameter, the examiner searches on the code that signifies "man wearing hat" -- a group so large that it could yield thousands of similar trademarks to review. On the other hand, the prevailing coding can be too narrow. For example, the examiner is faced with no choice except "man riding a kangaroo" when a far better parameter might be "man riding an animal."

Examiners strongly endorsed the notion of reviewing and refining these coding structures -- not necessarily creating a new mouse trap, but building upon what exists. Such an undertaking would require the review and evaluation of literally thousands of records. For example, in order to add a "chef's hat" category, it would be necessary to retrieve all extant trademarks containing a "hat" -- the first step in identifying the subset, "chef's hats". This would obviously be no small task, but may be the only process by which trademark coding can be uniformly and consistently updated. Non-PTO users also raised a serious issue regarding the Design Search Codes. They believe that the main problem is not classification -- although this could be updated -- but errors made by clerical staff in assigning codes to trademark designs. According to both internal and external users, little to nothing has been done to resolve this issue, perhaps due to the almost prohibitive cost involved in reclassifying records.

The 54% dissatisfaction of X-Search users and the even greater 64% dissatisfaction of Trademark examiners with coding and classification accuracy, along with the above mentioned low marks for data entry errors and missing records, suggests that database reliability is perhaps the critical problem of X-Search. Despite the attractive Windows interface of X-Search, and relatively high scores of the system for "ease of use," only 70% of all X-Search users and 63% of Trademark examiners were satisfied with the extent that X-Search "meets their overall work needs." Although this level of satisfaction is in the same range as other major PTO proprietary systems, it is much lower than ratings received for most COTS applications and other PTO-proprietary tools used by examiners and other PTO staff. Given X-Search's central role in a Trademark examiner's life, the 37% dissatisfaction rating by this group should be a matter for concern and attention by PTO's management.

Training on X-Search is one of PTO's success stories. X-Search training is treated seriously and systematically, unlike that for other PTO systems. Incoming attorneys receive over 20 hours of lecture and hands-on X-Search training. Manuals and documentation are readily available and apparently routinely used. Even though some attorneys said that their initial training was somewhat untimely -- too far in advance of their actual use of X-Search -- most were quick to say they felt they had been amply trained on X-Search and understood its functionality well.

Survey results generally confirmed the positive view of the training efforts undertaken by the Trademark office. Among Trademark examiners, 80% were satisfied with the availability of X-Search training, and 75% were satisfied with its quality. The satisfaction rating for X-Search training availability was substantially higher than that of other major PTO proprietary systems, which ranged from 34% to 68% satisfaction. Virtually all (99%) of Trademark examiners in the study reported having been trained on X-Search. This training generally occurred early, with 48% of Trademark examiners reporting having received their training before starting to use X-Search for their job and 40% at around the same time they started to use X-Search. Only 11% reported having received initial training after starting to use X-Search for their job.

The collegial atmosphere at Trademarks has also been in the broader service of training and support efforts. Members of work groups tend to volunteer to train others and the overall level of mutual support seems high. Importantly, each unit is allowed to establish their own training policies so there is ample opportunity to customize training around emerging needs.

What the Public says about X-Search

External commentators agreed that X-Search, in most respects, is an improvement over T-Search. They noted that the Windows interface is an improvement over T-Search as is the integration of text with image. They also noted that X-Search is faster (although not fast enough, given the hourly usage fee) than T-Search, especially now that the new text server has been installed, and that it crashes much less frequently.

The biggest problem with X-Search -- and one that threatens to undermine the effectiveness of the application process -- is the pervasive inaccuracy of the Design Search Codes. Our panel of non-PTO users, each with many years of search experience, estimated that one-third of all trademark applications include Design Search Codes. They say that of these, 50% - 80% had erroneous or questionable entries.

According to external users, this is not due so much to data entry error as to the inability of clerical staff to identify trademarks correctly. External commentators pointed

out that this is not a problem that can be resolved with improved training, since it stems from a lack of understanding of the nature of the images themselves. For example, if a classifier has never seen or heard of a sand dollar, how can he or she be expected to properly recognize and classify it? This dilemma has seriously eroded Design Search Codes accuracy and X-Search effectiveness as a whole.

While some commentators noted that X-Search is better than the "shoes" on Word Marks, it is much worse with Design Marks. In fact, most commentators felt that X-Search data inaccuracy contributed to their reliance on the "shoes" or other commercial products to conduct most of their work, with X-Search serving only as a supplemental method of confirming prior findings.[88] The commentators noted that Design Search Code problems are so serious that when Trademark data is sold to commercial vendors they go to great lengths to correct erroneous codes before entering them into their own products. This is a problem that only Trademarks can ultimately resolve, however, the CIO should work with Trademarks to identify innovative methods of cleaning the data.[89]

Commentators also noted that X-Search Pseudomarks are often erroneous, inconsistent or missing. This problem was attributed to frequent turnover of Pseudomark data entry staff and to the same problem that plagues Design Codes: a lack of understanding of a given trademark's meaning. Commentators admitted that erroneous spellings inherent to many trademarks will always make this task somewhat problematic and interpretations of a given trademark may differ from person to person. Because of this challenge, it is even more urgent that codes be entered for every case in which they apply and that classifications be as consistent as possible.

In our own brief observation of X-Search, we witnessed Pseudomark problems firsthand. During a typical search, many Pseudomarks had no apparent or intuitive relationship to the trademark, that we or the professional searcher working with us could discern. On occasion, they were missing entirely.

The 1996 SITP indicates that an Automated Pseudomark creation process will be in place by September 1998. While this may solve the missing Pseudomarks problem for many cases, it will not correct erroneous marks. This is because many marks are complicated and strive to be unique, resisting easy classification through

---

[88]Heavy external user reliance on the "shoes" is also due in part to their need to search lapsed trademark images, which are not in X-Search prior to the late 1970s. Ironically, the default inclusion of such "dead marks" was an irritant to some examiners since they were irrelevant to their work.

[89] One method of cleaning the database that was identified during our interviews was to enable examiners to "flag" suspect Design Search Codes on-line in X-Search. These flagged records could then be evaluated by some form of quality control group to ensure uniform Design Code classification and accuracy, without slowing the examination process.

software design. Thus, while an automated process may be a step in the right direction, Trademark sources tell us that it will not address the core problem -- quality control. No sustained effort to address this core problem appears to be underway.

While external users singled out the Hit List on X-Search for praise, they noted that it could be improved. All commentators wanted the ability to tag records from the Hit List so that they could view or print them later. Currently, they must write the records down on paper if they want to return to view them later. According to sources in Trademarks, this feature could be added to X-Search without too much difficulty. However, since Version 1.1 will include this feature and is scheduled for release in late summer 1996, most felt that implementing it would not be an efficient use of resources. This would seem to be correct, unless the implementation of Version 1.1 continues to slip.

Many members of the public felt that their needs were not adequately taken into account in the design of X-Search and that it is almost impossible to effect needed changes or corrections. Commentators agreed that X-Search was designed and built for Trademark examiners, not for the public. The result is that X-Search does not perform all of the functions that they require and must be supplemented by the "shoes" or some other information resource. They feel that they are, in a sense, the stepchild compelled to be happy with whatever functions designed for the examiners fortuitously spill over to them.

The public's belief that their usage of X-Search is trivialized contributes to their inability to get system or data errors corrected. Several people mentioned that there should be an "ombudsman" to represent their needs and problems to PTO. As it stands now, they feel they have little voice in how X-Search, TRAM or other systems they use will evolve.

Chapter 4: TRACKING SYSTEMS AT PTO

Statistics on file movement and pendency are derived from PALM and TRAM.[90] But aside from providing management reports on production statistics these systems both *impact* and *expedite* the application process in numerous ways. PALM and TRAM support PTO's operations in these ways:

- Promote file movement
- Reduce pendency
- Provide an accurate, up-to-date report on the current status of a file
- Locate a missing file
- Inject individual accountability to the system
- Accurately credit Patent and Trademark examiners for production
- Enable data entry, editing and update of an application record
- Eliminate human and system errors and the need for "double checking" and duplicate effort
- Provide edit-checks, error flags, and useful diagnostics to the overall process
- Automate those aspects of the process that are feasible to automate
- Reduce the paper churning throughout PTO and stored in various repositories
- Provide flexibility to "evolve" and accurately mirror changes in PTO's business processes -- in response to statutory obligations, treaties, outside contractor involvement and the expectations of interest groups
- Provide production statistics as needed, in a flexible format that can be tailored to the unique needs of each work unit and manager
- Provide an easy-to-use, user-friendly system that requires minimal training, and includes on-line training help (or manuals) as necessary

PALM and TRAM are used not only by examiners but by *everyone* who handles applications in the Patent or Trademark pipeline -- almost 90% of Patent and Trademark staff. While PALM and TRAM are not used *intensively* by most, they are used *extensively*. But along with near universal usage, there appears to be widespread, low-level pain --in the form of wasted time and motion, inefficiency, the need for double-checking the system, the inability to pin down application location or status and a glut of paper. And there is the more obscure issue of "opportunity cost" --

[90] Sources in Trademarks told us that the average pendency of trademark applications went up significantly between FY93 and FY94. Trademark pendency is obviously due in part to the skyrocketing applications (an 11% increase in FY94 and a 12% increase in FY95 according to PTO's annual reports), but it also appears to have been negatively impacted -- at least temporarily -- by a reorganization in 1994 that shifted receipt and processing of incoming mail and payments entirely to the Office of Trademark. This created a backlog in the Trademark mail room that is still working its way through the pipeline, like the deer passing through the proverbial python. At the time of our interviews, commentators were reporting that this situation was just beginning to take a turn for the better.

the benefits that a more flexible and supportive replacement system *could* be providing to all concerned.

PALM and TRAM were originally conceived as management *tracking* systems that would do little to support the actual processing of a paper application. While this continues to be the case, PALM and TRAM are now the only platforms available for implementing limited edit-checking and automation features within the foreseeable future. There are passages and charts in PTO's 1987 Strategic Information Plan that express the view that all-electronic, semi-automated replacement PAM, and TIS would be in place by the early 1990's. But now, according to the 1996 SITP, it appears that PTO is stuck with PALM and TRAM through the end of the decade.

The critical question from the systems planning perspective is: how much "patching" should be performed on these antique platforms before they are finally discarded? How soon should they be discarded? Focus group findings suggest that lost productivity and bad side effects are considerable and that opportunity costs may be higher than anyone realizes.

Essential characteristics and limitations of TRAM and PALM

In the course of reviewing hundreds of pages of documents on the TRAM and PALM systems -- and then having spoken to dozens of users -- we discovered that the essential characteristics and limitations of these systems had yet to be comprehensively captured in a single paper. In order to partially correct this situation, we offer the following summary , along with some of the implications for PTO's office automation efforts. These points are conveyed in unvarnished form, together and up front because the remainder of this chapter is largely derivative of these points, with the addition of more user perspective and commentary.

- **TRAM and PALM are mainframe systems that were conceived in the late 1970's, implemented using late 1960's DMSII COBOL technology and deployed in the early 1980's, before PC's were a blip on the radar screen.** It so happens that TRAM was deployed in April 1983, about the same time IBM PC Junior made its debut. Like APS which followed a few years later, TRAM and PALM were close to state-of-the-art technology in their time and unique as the first major applications of bar code technology in the Federal sector. Fifteen plus years later they stand as antiques.

  The systems are swamped by management reporting needs that could be easily accommodated by more modern relational database and report generating tools. But most importantly, the "mission" of these systems -- while ambitious in the late 1970's -- now appears overly narrow and disconnected

from the pressing task of automating and streamlining PTO's business processes.

- **TRAM and PALM both utilize the Unysis A16 mainframe and are written in COBOL using DMSII database management systems**, a programming language that was current in the 1960's, faded in the late 1970's and is now considered notoriously difficult to maintain and update.[91] "Every time something is changed in the software, it seems to mess up something else." It is difficult to recruit and retain systems professionals at any price who are willing to dedicate themselves to the maintenance of such "graveyard" systems. Documentation with these systems is said to be minimal to non-existent (they were developed totally in-house) and personnel attrition has stretched PTO's "institutional memory" to a precariously thin point.

- **TRAM and PALM do little to support the actual automation of their respective application files.** They are transaction-based systems that track the movement of a paper file (in only a crude way), and report mostly aggregate statistics through reams of sometimes unnecessary and unwanted printouts sent weekly to managers throughout PTO.[92] TRAM and PALM -- because of their rigid, archaic software -- cannot easily evolve to keep up with PTO's changing business processes and cannot provide a platform for significant enhancements along the lines of true office automation. They are paper spewers rather than paper reducers. While their "pain" level is just below threshold, they are at the center of PTO's thwarted efforts to improve file movement, reduce pendency and achieve a paperless "electronic office."

  Both systems have only limited ability to do what they are most often called on to do: report on the exact status and location of an application file. This is so because PTO's business processes are inevitably and constantly changing -- adding new contingencies, sub-routines, processing points, side-loops and "shuttles" to an application "pipeline" that more nearly resembles a Rube Goldberg plumbing system.[93] These changes in the process typically are in response to statutory

---

[91] While COBOL programmers can still be found, since many large public and private sector organizations still have large COBOL legacy systems, the problem with TRAM and PALM have more to do with the rigid DMSII database structure. Experts in managing this type of archaic database system are now quite rare.

[92] It should be pointed out that TRAM, through photo composition and post registration does contain features which make it somewhat more helpful in the overall, actual examination process.

[93] Anyone who doubts this should obtain a detailed flowchart of Patent or Trademark processes.

mandates, international agreements or new user requirements. Meanwhile, PTO's location codes and "map" of the process as reflected in TRAM and PALM remain "locked in amber." Trademark employees refer to several segments of the Trademark process as "black holes," because TRAM does not discriminate or "track" within those segments. At *best*, TRAM may give the docket number or some other general indicator of location, but does not pinpoint the exact individual who has it, much less who *had* it at various points in the past. As a result, it is difficult, if not impossible, to establish personal accountability.

According to Trademark sources, some improvements to location code specificity and accuracy in pre-examination have been made. Still, there remain a number of "black holes" that have not been addressed, especially in "Pub-and-Issue". While the technical capability to fix this problem will certainly be available with the migration of TRAM to PTOnet, there are no specific plans to address this issue in the near future.

- **Both systems reflect a top-down design philosophy that suggests that the system has evolved more to satisfy management's information need to define what the rest of management "ought to want to know" in the way of weekly reports.** To overcome this "omniscience," each week dozens of PTO managers and their assistants get into the data entry business, rekeying numbers from hard copy printout to their PC spreadsheets in order to translate the statistics into formats that better serve their *real* needs.

- **Both systems utilize bar code technology.** A technology that was state-of-the-art in its time, now appears unreliable and trouble-prone. Employees constantly call attention to the irony of having to double-check an "automated" data processing system.

- **Both systems utilize dedicated "dumb" terminals installed in a limited number of locations throughout the Patent and Trademark operations.** These terminals (a) host the bar code peripherals; (b) flash often incomprehensible error code messages; (c) permit extremely limited database queries; and (d) produce slow, poor-quality printouts through dot-matrix printers. This means, for example, that a Trademark employee who receives a call about an application's status must put the caller on hold or arrange to call back, go to the nearest TRAM terminal (perhaps down the hall or on another floor), query the terminal, try to get a printout out from the balky dot matrix printer, get back to the office and back to the caller.

- **Both systems have a look and feel that is 1970's-style rigid and unfriendly.** For example, both systems often respond to a file scanned in or

out with a five-digit "error code," with a correspondingly incomprehensible statement -- the definition for which often cannot be found in any book, and even if it can, often says nothing to the hapless user about how to correct the problem. Worse, the system is likely to get "stuck" at these and other points along the way and require the help of one or more resident experts to unstick the system by "flipping a flag" in a way that no one else seems to know how to do. On the other hand, a file may not "take" when scanned *in*, because it was not scanned *out* at the previous station. It then has to be walked back to the previous station because the prescribed sequence must be observed -- demonstrating the lack of flexibility for selective, authorized overrides. Finally, minor data entry errors (e.g., spelling or address errors) cannot be corrected downstream by those who detect them, but must be returned to the point where the error was made, disrupting the workflow and slowing productivity.

- **Last but not least, the situation with user training on TRAM and PALM varies somewhere between non-existent with older employees, to marginal for newer employees.** Many employees say that they received *no* training whatsoever on a system that they use up to several times a day: they simply learned by osmosis from whoever happened to be in the work area. A lucky few received some initial training, but this was rarely followed up with advanced training after they had some experience under the belt. This situation could only occur because TRAM and PALM are much more routinized than the search systems and a first-time user *can* bat through the routine with minimal help. Nevertheless, nearly all users echoed the sentiment that there is a vast reservoir of knowledge about TRAM and PALM that would help them in doing their job and moving the files along, but they do not have it. As one person said: "No one knows the impact [TRAM] has on file movement and pendency." As another person told us (echoing a view heard many times in APS focus groups): "PTO has spent a zillion dollars providing us with information tools, but we know only a fraction of what's there."

  No plans exist to improve the consistency of training, which currently depends largely on the willingness of a supervisor or "mentor" to train new employees. The CIO is not responsible for training and Patent and Trademark management, because of productivity pressures on examiners, has not made this a priority. Finally, sources tell us that perpetuating ignorance of system features has been a means of maintaining security, especially with the PALM system which contains highly sensitive information.

What employees said about TRAM

TRAM supports all Trademark operations, from receipt of a new application to post registration activities, and allows PTO to store bibliographic data on pending applications and active registrations, track prosecution history, and monitor workflow and employee production. Information on new applications is entered into TRAM during pre-examination and application movement is recorded using the bar coded serial numbers on application file jackets. Weekly hard copy TRAM management reports are generated by the CIO, based on reporting requirements received from Trademarks. According to the survey, 91% of Trademark staff uses TRAM at some point of their regular business week -- making this the most widely-accessed information system in Trademarks.

On the "positive side," TRAM users concede that these systems do perform useful functions. But most focus group commentators damned those systems with faint praise, then spun out a litany of shortcomings. For example, most focus groups reported that life without TRAM is inconceivable since it gives rudimentary assistance in answering phone queries about an application's status, locating a missing file or compiling periodic production statistics. Users then hasten to explain how *limited* the system is in doing those things; how much more the system *could and should* be doing; how much more they would now be capable of, if they only had training. The alleged *functional shortcomings* center around these issues:

- Not indicating current application status with sufficient accuracy, specificity or up-to-dateness
- Not providing a comprehensive application history -- who handled it, where, when and for how long?
- Not providing sufficient information to pinpoint the location of a missing folder
- Not giving accurate credit to examiners on all occasions
- Not providing an effective, user-friendly module for new record data entry and existing records editing and updating
- Not providing effective edit checks, meaningful error codes, or constructive diagnostics keyed to the current process
- Not going far enough to automate new sub-routines introduced to the Trademark work process
- Not providing the internal flexibility to specify -- or override, with appropriate controls -- who is authorized to perform what operations/changes/edits
- Not providing a flexible system for on-line query of production statistics (in lieu of weekly, pre-defined, hard copy reports)

It was a source of some frustration for Mathis that a passionate assertion by one individual or group during a focus session would often be contradicted by someone else. For example, after hearing many people talk about TRAM's five-digit status code

limitation and the fact that TRAM does not present a comprehensive application history, a veteran user countered that "one *can* read where the application has been in the contents box if it has been properly wanded. Once again, this reveals the far reaching consequences of overlooking small but significant details that should be part of a comprehensive training program.[94]

When TRAM moves from the mainframe to a client/server environment on PTOnet, the CIO will have much greater flexibility to add features such as a full application history. However, the need for such a feature has not been clearly conveyed to the CIO.

Confusion and disagreement about the capabilities and limitations of TRAM is partly explained by differences in its *accessibility* to users. With PALM, users described a very conscious intent to maintain data confidentiality and integrity by limiting access, by "partitioning" who can do what to the system and also by partitioning knowledge *about* the system. In marked contrast with PALM, TRAM is accessible to members of the general public, who are free to walk into the Trademark Search Library and access TRAM, if they have the patience to learn its command codes. The fundamental reality is that -- given the lack of training and circulating manuals -- both PALM and TRAM are shrouded in apocrypha and assured of remaining obscure even to the people who use them regularly. In fact, for overall ease of use, TRAM received a cool 67% approval rating.

Short of a convocation of TRAMsters and a series of mini-Federal investigations, we cannot be sure precisely what TRAM can or cannot do. We can only report that there is an overwhelming consensus among the users that TRAM falls far short of delivering the quality of information and support that is expected of it.

The current situation with TRAM training and user documentation is unquestionably the result of a "laissez faire" philosophy regarding these matters. When asked what kind of training they received on TRAM, more than half of the focus group participants reported absolutely none! On closer questioning, it appeared that more recent hires were likely to report at least one or two hours of initial training, while most of the "old guard" said that they were the product of the "sink-or-swim school." Survey results showed actually a higher proportion of Trademark staff, 59%, have received training, most at a the beginner level. Though the lack of advance training is not unique to TRAM, perhaps the cursory nature of training and its lack of depth

---

[94]Ideally we would have had to conduct each focus group around a TRAM station; replicate the relevant keyboard operations; query everyone about who does or does not know about this and query them again to find out who does or does not believe that this is an adequate solution to the problem under discussion.

contribute to the relatively high (48%) dissatisfaction with availability of training and overall quality of training (44%).

Both Trademark attorneys and other staff say that they continue to learn TRAM by osmosis. They pick up whatever they can from others in their area and they depend heavily on the "oral/folklore tradition." In nearly every focus group, much time was spent trading on that tradition and there were many instances of "Oh yes you *can* do that" or "You just hit this key, then that key, then. . .," and "Shees, no one ever told me about that." Though the statistic was not measured for each system specifically, 84% of Trademark staff reported that they were satisfied with the resources provided by knowledgeable colleagues in helping them with their computer support needs. "Knowledgeable colleagues" received higher scores within Trademarks, than any other group, including the Help Desk (66%), CIO personnel (57%), outside help hotlines (52%), and on-line help included with software (47%).

Apparently there is a TRAM manual somewhere, but "it was written by a computer geek and no one has ever seen it" reported one cynic.[95] When asked if TRAM has "Help" functions, one participant said "Yes, we call it an 'off' button." That person then proceeded to explain that certain "sticking points" can indeed be remedied by switching the terminal off, waiting a moment, then switching it back on.

Clearly there is great need for more TRAM training, "more overview of TRAM capabilities and greater uniformity of training, plus manuals" -- particularly for examiners and Trademark Assistance Center (TAC) staff. The administrative down time and loss of productivity is probably horrendous if it were fully known and any expenditures in this area would be repaid several times over. It is virtually certain that PTO's investment in TRAM training is well under one half of one percent of total lifetime system cost -- yet any increase in training would improve effective utilization of the system and user productivity by a significant percentage.

Paradoxically, many systems development people we interviewed seemed to be of the opinion that TRAM training is not an issue and current efforts are quite adequate. There may well be an endemic blind spot among some people about the relative importance of training versus hardware and software acquisition. There certainly seems to be a persistent lack of awareness about the dearth of computer skills among a large segment of their user community. In the survey, 26% of Trademark staff considered themselves to be beginners to novice in computer skills; 51% described themselves as "intermediate." On the surface, these figures do not appear alarming, but perhaps they really are given that 66% of Trademark staff reported that they spent 4

---

[95] The TRAM manuals were written, not by the CIO, as many people assume, but by knowledgeable TRAM users in Trademarks. The widespread dissatisfaction with these manuals may reflect a general fear of technical terminology, no matter who writes them.

or more hours each day using their PC. Small gains in knowledge and use across the Trademark staff could improve efficiency and product quality tremendously when those gains are multiplied across 400,000 plus man hours per year, every year.[96] Consider multiplying this figure by average wage rate per employee and one gets a bracing impression of the importance of the efficiency of computer usage to an agency such as Trademarks as a whole. Patent figures would be substantially higher due to its larger size.

Many Trademark employees complained about the dearth of TRAM terminals to help them answer outside calls regarding an application's status. Examiners and clerical staff regaled us with stories of having to run down the hall or up and down stairs, to get to a terminal in order to look up the status of an application -- often while an outside caller is on hold -- or to "TRAM the file in or out" as required with each processing step. A "lucky few" -- mostly high-volume clerical processors -- are blessed with TRAM terminals within reach, along with the dedicated dot-matrix printer. But with a finite number of terminals scattered throughout Trademarks, it is inevitable that many employees are inconvenienced and must plan their workday around periodic "TRAM trips". In fact, 37% of overall Trademark staff and 49% of Trademark examiners reported in the survey that access to TRAM terminals constitutes a problem.

As employees reported their distress, we were well aware of PTO's plans to place TRAM on PTOnet under the Single Terminal Access Facility project. According to Trademarks and CIO sources, this project is well underway. TRAM on PTOnet is already available to members of TTAB and other selected users. TRAM, with all BCR and CRT transaction processing capabilities, will be available to all examiners and the public by FY97.

We also heard widespread reports that outside calls are overwhelming examiners' ability to field questions. Examiners report that an increasing number of calls are washing back on them and processing staff alike. These calls are seriously disruptive to the examination process and often serve only to frustrate callers who frequently get "bounced around from office to office." It should be noted that we heard this report at a time when an unprecedented backlog of applications was working its way through the Trademark pipeline and pendency was reaching an all-time high. Undoubtedly these conditions were triggering an unusual number of outside calls about applications status. But we heard that TAC, which is supposed to receive the calls, handling them wherever possible and acts as an intelligent traffic cop when in cannot, is passing them through willy-nilly.

---

[96] Note this figure, which represents the equation 438 Trademark staff X 4 hours average computer usage per day X 230 work days per year, is illustrative of one possible way to calculate impact.

Focus group participants say that the new call-in voice line -- which provides an automated, voice message on a given application's status (and does indeed show a huge call volume of up to 27,000 calls a month) "does not provide the information it should" and "is often inflammatory to outside users." The call-in voice line seems to be a perfect example of good intentions gone awry: no doubt its purpose was to deflect incoming calls from workers by providing the current case status after a caller enters the appropriate code. But the automated message is driven by status codes in TRAM. It appears that voice system designers did not appreciate the fact that status codes in TRAM are not specific enough or do not closely mirror processing steps. As a result, callers often hear the same status week after week, while the application is actually moving through the pipeline. The message itself is often confusing and unclear; there is no indication of "next steps" and likely timing; and there is an ominously abrupt sign-off, with no number to call for further clarification. The concerned caller promptly re-dials to locate a "live body," then ties up an examiner or support staff to obtain the desired information. A sample survey of voice line callers would establish the extent to which the latter scenario occurs and the extent to which the voice line satisfies callers' needs; we are not aware that such a survey has been done.

Examiners tend to view TRAM as a system that cannot be trusted, requires constant double-checking and often cheats them out of credit for a given action. Examiners report that with certain cases (especially Statement of Use), if they hit a wrong key, they don't get credit for that case. Other times they "TRAM out" a case and hear the double-beep confirmation; but when that case is later brought up on the screen, it is evident that the transaction didn't "take". If and when such cases are discovered, it may take up to three "helpers" and one hour of chasing around to flip the flag and retrieve the credit. Since the attorneys are on a production standard of 1.1 cases per hour, the credit is hardly worth retrieving.[97] The survey found that overall satisfaction with TRAM system reliability (which includes "freedom from downtime" and from "problems") dipped into a dangerously low range. Only 68% of all users were satisfied with TRAM system reliability, only 54% of examiners. In contrast, 87% of Trademark clerical TRAM users were satisfied with the system's reliability, perhaps because over half of the 70% of those who had been trained, received advanced training. Of this group, 100% considered themselves to be advanced to expert on the system. Therefore, they may have had a better understanding of the source of these glitches and how to circumvent or avoid them.

The combination of strict production standards coupled with: (1) a balky, error-prone tracking and crediting system; (2) virtually zero training on that system; and (3) a

[97]Another example of glitches is with the scanner technology: a user may attempt to scan in a bar code of an addressee, but the bar code won't take. The five-digit code must then be entered manually.

steady stream of outside callers inquiring about their application's status -- conjures up a Gary Larson-like vision of "CyberHell" in the minds of some.[98]

There is a wide difference of opinion on the subject of lost credit in Trademarks. Examiners point to this as a chief TRAM weakness, while CIO and Production Control staff tell us that this is the first they have heard of it. Somewhere along the line, communication seems to have broken down between users and support personnel. Though it measures only communications *from* support personnel *to* the Trademark group, one survey statistic suggests that Trademark staff feel themselves to be slighted in terms of communications. Fully 69% of Trademark staff were dissatisfied with the information they receive concerning major decisions and changes that affect information systems and software tools they use. This dissatisfaction score is substantially higher than that given by respondents in the Patent group, where 54% were dissatisfied -- although the Patent scoring is nothing to rejoice about. Appropriate Trademark staff should verify whether this is indeed a serious problem or simply a byproduct of poor training. If it is indeed valid and serious, remedies should be incorporated into the TRAM redesign when it moves to PTOnet. If it is a byproduct of poor user understanding, procedures which demonstrate system functions should be included in TRAM training.

TRAM is generally viewed by both examiners and other staff as a system that is inflexible, user unfriendly, and overly code-dependent. TRAM apparently lacks the flexibility to easily change user authorizations. "Authority" is resident in each TRAM terminal based on its physical location and that authority is not easily re-allocated or adjusted. Therefore staff have to walk a folder to the "home" machine in order to "TRAM" that folder in or out of a step that may have been previously missed, to clear an error code or to "flip a flag" to reflect a change of status.

Some persons familiar with TRAM say that it works "wonderfully" as a tracking system when it is used properly. Unfortunately, this is not always the case. According to one interviewee, lost or misplaced files account for "99% of TRAM's problems." This is both a *human error factor/training problem*, in that people frequently enter the wrong bar codes (they TRAM the file to its intended destination by aiming the bar code gun at a reference sheet loaded with bar codes and evidently many personnel are not good markspersons) and a *system problem*, in that the scattered, dedicated TRAM terminals are inherently inconvenient to use. If a TRAM terminal is not available, people will not go out of their way to find one and have found methods of circumventing the system. One example of this is the fact that "lost" files cannot be TRAMed *out* of a given unit but

[98]Examiners are adamant that *X-Search slowness* is a higher priority than TRAM. Nevertheless, one attorney put the issue in perspective by saying, "Nobody realizes how TRAM affects pendency and file movement."

can be TRAMed *in*. In this way, the file keeps moving and people pass the error onto the next person in the workflow, who undoubtedly follows suit. Ideally the system should prevent "lost" files from being TRAMed anywhere, but users, in their frustration, have identified a means of getting around this procedure. While the overall satisfaction of Trademark staff with TRAM's ease of use as revealed from the survey are merely lukewarm instead of alarming (70% of all Trademark staff, 62% of Trademark examiners), clearly some problems need to be fixed. Both the focus groups and the survey suggest that the expert clerical workers have developed means of fixing or getting around TRAM's sticking points. However, for more casual users the system is definitely not a quick read. Unfortunately, many Trademark staff, particularly examiners, use TRAM on a regular basis but in a limited way. Though their limited usage may not appear to justify widespread, in-depth training, their poor understanding of the system can generate and introduce errors that have ramifications downstream, for example, when a file that has been properly accepted by the system generates a "lost" or missing file.

Migration of TRAM to PTOnet, combined with BCRs at the desktop, will help reduce lost and misplaced files because staff can scan files at their desk. The survey showed that 66% of Trademark staff felt that placing TRAM at their desktops would have a high to major impact on their day-to-day productivity. For Trademark staff, this ranked as the second most desired change or enhancement, behind only "placing X-Search at their desktop." TRAM at their desktops was substantially more desired by Trademark examiners (80%) than Trademark clericals (50%), undoubtedly because many of the latter already have easy access. More location codes could be added to create a greater level of detail. But this problem will always remain, to some extent, as long as there are paper files and people who fail to wand cases properly.

The "public" (usually local law firm employees) has long been fingered as the main source of lost files and we certainly heard this in focus groups. However, a recent internal study found less than .01% of missing files were last checked out by "non PTO personnel" -- the rest were improperly TRAMed. Despite PTO's suspicion of the public's handling of the files, there is nothing in TRAM that identifies members of the public who check out documents. TRAM only indicates "charged to non-PTO personnel." As with nearly all assignment indicators -- internal and external -- TRAM does not give the name or number of the "non-PTO personnel."

This problem does not appear to have been addressed. Trademark sources tell us that this is largely a procedural issue. No effective means exist to prevent the public from leaving the building with Trademark documents or for identifying who has the documents. When TRAM is migrated to a client/server environment, fields identifying the name, address and phone number of people who check out documents can easily be added. However, procedures would have to be enforced for collecting this information and specifications would have to be given to the CIO.

TRAM's Assignments application does not truncate to the left, making it difficult for users to search and locate needed documents. The lack of left truncation means that the system pulls up only assignments that begin with the series of letters that the user enters to search for -- not where the letters appear in the middle of an assignment. This means that users must enter many variations of the search term to feel comfortable that they get all of the relevant listings. Apparently, newer versions of the Assignments application still have this problem.

Perhaps most significant of all, TRAM has no Windows interface to make use of the system easier. Instead, there are a host of cryptic, misleading and unhelpful error and flag codes that pop up and must be related to their corresponding meanings. Staff report that some of these codes are not found in the code manual, some don't make any sense at all and most don't tell you what to do to fix the problem. There are only two or three "TRAMsters" in all of Trademarks who are able to decipher some codes and implement the appropriate fix when a user/supplicant comes to them. These are the "high priests/priestesses" of a system so obscure and mysterious that it is surrounded by talk of "secret codes" and "secret flag-flippers."

The migration of TRAM to an open relational database environment uses up-to-date programming languages, database packages and user specifications will make TRAM more user-friendly and intuitive since it will be in the familiar Windows environment, as is X-Search. In addition, several features will be added, including tables that will produce text responses to user errors, rather than error codes. On-line help could be developed with input from end users, as happened with X-Search, to provide more effective assistance. Again, however, there needs to be better communication between Trademarks and the CIO to ensure that these improvements are included in the new version of TRAM.

Examiners view TRAM with considerable wariness, but they are even more skeptical of its likely successor. More thorough-going support and automation of the examiner's work will require a totally new system built around an all-electronic application concept. Yet the mere mention of an all-electronic application strikes fear in the hearts of most attorneys, largely because of their daily hair-raising experiences with TRAM. It will be a real challenge to convince them that "Son-of-TRAM" will be a totally new generation system, with security, flexibility, ease of use and freedom from error. As one participant put it, "nobody trusts a non-paper system around here." This poses another public relations challenge for PTO's management and demonstrates again the extent to which the CIO has its work cut out for itself in communicating and persuading the larger community that their needs will be addressed.

Users are at least mildly critical of TRAM data timeliness and quality. In focus groups, we heard an undercurrent of dissatisfaction with data integrity. For

example, applicant correspondence seems to get lost in the mailroom, doesn't catch up with the main file, and doesn't get entered in TRAM on a timely basis. A change of location or status that appears to be properly "TRAMed in" may not be reflected in the system until days later. Survey respondents recognized the data entry errors in TRAM, with 37% expressing dissatisfaction with "freedom from data entry errors." A higher proportion of Trademark examiners as opposed to clericals were dissatisfied with the data entry error problem. Nearly half (47%) expressed dissatisfaction with this aspect of TRAM versus 17% of Trademark clericals.

We should caution against reading "too much" into these data and anecdotes since only an in-depth internal study can determine the actual incidence of data errors and the relative distribution by type and likely source. But the most frequently-heard problem seemed to be data entry errors that occurred at the point of origin and in the course of edits or updates to the record. These data entry errors are particularly troublesome, because once entered they are difficult and arduous to fix; they are carried over into X-Search and get "memorialized" there, to the everlasting consternation of subsequent searchers. Many Trademark employees do not realize that TRAM feeds into X-Search.

PTO's NADES system, which uploads data to TRAM, is an anachronism that contributes more than its share to messing up initial data entry and subsequent updates. Representatives of PTO's data entry contractor are unequivocal about the need to upgrade NADES -- the TRAM data entry, uploading and editing software module. Contract workers responsible for data capture and Trademark employees responsible for subsequent updates and edits are struggling with NADES, which is said to be rigid and unfriendly, and lacking the kind of easy to use spell check feature found nowadays on the lowliest word processor.

The CIO plans to deploy an integrated PC-based NADES by FY97. This application will include most of the features that end-users have come to expect from word-processors, including modern spell checks. The new system should do much to reduce TRAM and X-Search data entry errors. Additional edit checks and other diagnostics, along with more meaningful error codes are certainly feasible once TRAM is migrated from the mainframe and the hierarchical constraints of the DMSII database management system to a relational database environment. The CIO and Trademarks must work closely together to determine what these edits should be to ensure that data integrity is maintained.

Beyond the matter of initial data entry, however, there are many other points in the pipeline where entries and updates are made. For that reason users report a disconcerting amount of inconsistent, contradictory information on various TRAM

screens.[99] The system should do a better job of cross-checking data entry and throwing flags as necessary to prevent users from entering incompatible information. Of course, there should be spell-checking at all points in the pipeline too, wherever data entry occurs. While this would not eliminate all data entry problems -- trademarks often contain non-standard spelling, abbreviations or other variations -- it would limit the most obvious problems and facilitate searches conducted months or years later.

Once TRAM migrates to a client/server environment, there will be no technical constraints prohibiting downstream users from performing needed edits. The trick is to ensure that the cure is not worse than the disease. By allowing more users to edit data, Trademarks risks having more data errors as numerous people modify data. Nevertheless, there are ways to get around this problem: only selected users in an examination group could be allowed to perform edits; only certain fields (names and addresses) could be edited; or a combination of both of the above. Trademarks and the CIO should work together to find a way of making the system more flexible without jeopardizing TRAM data integrity. Along these lines, the absence of data editing tools raised widespread dissatisfaction among Trademark respondents, 49% of whom were not satisfied with this aspect of the system.

Distribution of hardcopy TRAM reports throughout Trademarks is reported to be untimely and error prone. Mailroom personnel responsible for such distributions are said to be overloaded and unable to get the reports out on time. The system for addressing reports is inflexible, susceptible to human error and not tied to the official personnel roster. Therefore, a report may continue to get routed to an addressee years after that person has left the job. Reports without cover sheets can wind up anywhere so the hapless recipient is forced to chase it down. In sum there are too many late and misdirected TRAM reports moving around the office due to a variety of causes. In fact, there should be *no* paper moving around the office -- information should be available on-line, with up-to-date software dumping out data in formats defined by the user.

The CIO indicates that it is prepared to provide Trademarks with on-line query capabilities for several needed reports. What appears to be holding this process up is a breakdown in communication between the CIO and Trademarks. According to the CIO, Trademarks has not given them detailed specifications for these on-line reports.

---

[99] We would note that this could be a training issue rather than a systems issue.

PALM and Its Impact on PTO Employees

If an account is ever written about the history of early computer systems at PTO, PALM will occupy a unique place. Conceived in the late 1970s, based on late 1960s technology, implemented in the early 1980s and still in place as of 1996, PALM is a system of ironies and contradictions, as conveyed by the following comments from members of the Patent Corps:

> "PALM is great. You can't believe what an improvement it is over the former card system [in use up to the early 1980s]. With PALM, your chances of locating a missing file are maybe 90%. We couldn't live without it."
>
> "PALM is like Listerine -- the taste we hate, ten times a day."
>
> "PALM is an abomination, a relic from the 1970s. It's a constant reminder of how far computer technology has advanced in recent years, and how frozen in time -- and inefficient -- that system has remained."
>
> "It's really amazing how far this antiquated system has been pushed, patched, and tweaked in order to accommodate the needs of the Patent Office. We're so hooked on PALM -- flaws and all, it's the devil we know -- we worry whether any replacement system will be as tailored to our needs as this system that 'evolved' over 15 years."
>
> "All the information you could possibly want is in that system -- somewhere. Getting the information *out* of the system is often a formidable challenge."
>
> "PALM is like a glass door, with a deli-full of goodies behind it. You're banging on that glass door -- starving -- but you can't get in."

PALM is the "silver cord" that tenuously holds together (tracks) the thousands of applications and related papers that wash into the Patent office daily, then gradually move from, desk to desk, over an average of 19 months. PALM is the only "memory trace" able to report -- with varying degrees of precision -- the current status and location of an application file and the docket and production numbers associated with an examiner or examining group. As one examiner said, "If PALM goes down for any length of time, most of the Patent work force might as well go home."

At last count, PALM contained over 1,000 different screens, only a handful of which are used by the Examining Corps on a day-to-day basis, and 37 different report "packages" distributed weekly to hundreds of managers. PALM data is highly confidential and the ability to update -- or even view -- it highly restricted.

Staff who were involved in the start up of PALM told us that the system was never intended to survive beyond the mid-to-late 1980's, at which time an all-electronic

filing system would eliminate the paper-based system and therefore eliminate the need for paper tracking. But this expectation apparently underestimated the cost and difficulty of implementing electronic filing. Thus, PALM is the "gray ghost hovering over all the paper files," a ghost that serves as a constant reminder of how long electronic filing has slipped and slipped into the hazy future. In terms of another memorable metaphor we heard, PALM began as "a little one room shack," and after so many years of slippage on the electronic filing front, eventually evolved into a "palace of cards!"

Today, PALM stands as a major cause of end-user frustration and a significant contributor to sluggish file movement. While the underlying culprit continues to be PTO's cumbersome, paper-based processing, PALM is so inflexible and fragile that it has become an inhibitor -- rather than a facilitator -- of changes in paper processes or internal organization that Patents might want to implement.

PALM's apparent immortality has brought the PTO to a difficult place, where replacing it will entail significant risks, costs, trauma and retraining. Yet living with PALM in its present form for another seven years or so seems even more risky and costly -- in the form of diminishing user tolerance, "catastrophic" outages, "hidden" inefficiencies, and reduced flexibility for PTO's BPR efforts. In fact, living with PALM in its present form (at least with its dedicated terminals) may become literally impossible, because the BCR guns are, according to PTO sources, no longer available on the market and the supply within PTO is steadily self-destructing.[100]

Background

The record number of patent applications in FY95 were up 18% over 1994. Average pendency *worsened slightly* from 19.0 to 19.2 months. 1995 pendency is still short of the goal of 18.4 months achieved in FY89. Some would argue that 1995 pendency should be much *better* (lower) than 1989, given the resources that have been applied to information resources such as APS and various PC-based office automation tools. But before drawing conclusions, we would point out that many factors affect pendency, including:

- The amount of staff in relation to the escalating number of applications
- The increasing complexity of those applications
- The increasing complexity -- or convolutedness -- of underlying application *processes*
- The increasing size of the domestic and foreign patent database to be searched

[100] We have been told by Patent officials that the office recently acquired 150 new BCRs which should hold them for the immediate future.

- The increasing need to search non-patent literature for selected art
- The increasing number of commercial databases that need to be consulted in order to provide a comprehensive view of "prior art"
- The fact that patent fees -- up 69% since 1990 and initially earmarked for upgrading PTO's information resources -- have in recent years been redirected by Congress to other agencies and needs. As a result, certain critical success factors for systems effectiveness -- notably staff training -- have been consistently "shorted".

Obviously PALM is not the only factor nor the only system that affects pendency. PTO's APS also has a major bearing on the time required for examiners to perform their job. Judging from the resources and attention that have been devoted to APS over the past 10 years, management has well recognized the impact that it has on examiner productivity and file pendency.

But PALM is used not only by patent examiners; it is used by *everyone* who handles applications at any stage in the patent "pipeline" -- 86% of the Patent workforce. As with TRAM, along with widespread usage there appears to be widespread, low-level pain -- in the form of wasted time and motion, inefficiency, inability to definitively pin down application location or status and a lot of lost or mismatched files and paper. All of this reduces the efficiency of the Patent office and the overall quality of the final product.

What PALM Users Told Us

In asking employees what they think about PALM, we were constantly confronted with the "criterion problem" -- compared to what? In recent PALM focus groups we found, as with TRAM, that it was difficult to accept at face value any statement about PALM's capabilities or shortcomings. A pervasive ignorance of "hidden" capabilities led to claims and counter-claims about PALM that left participants furiously trading information and phone numbers -- and left us scratching our heads and hoping that there was at least one person in the room who could resolve the ambiguity and correct any erroneous statements. Only after going over the issues with several groups did we begin to feel comfortable that we had gotten to the bottom of most issues and found a consensus.

A few examiners credited PALM with having some good features, but it appears that these are not widely known in the examining corps. Again, pervasive ignorance seems to ensure that this inherently rigid system is used inefficiently.

In discussions with us, a PALM manager in SIR rattled off several of these features -- including the fact that an examiner can type "PALM" then hit the "Enter" key on existing terminals and access a "menu displaying all possible transactions." Yet

even the manager conceded that most examiners probably do not know about this feature -- and not knowing about the feature almost certainly implies a certain amount of wasted time and effort. This is another example of "burying" the training issue -- in this case, by simply decreeing that all PALM training will be delegated to SPEs, some of whom are no more qualified to train users on PALM than on Excel. While most examiners and SPEs believe that an extended period of PALM training would not be productive, the agency should ensure that examiners are aware of useful PALM transaction codes. Among Patent employees, 79% characterized themselves as "beginner-to-intermediate." PALM managers are now considering ways that special features can be presented through "help" keys. Such features could also display a comprehensive list of PALM codes to alert users to changes that could improve their work.

Many employees in focus groups -- usually in clerical positions, but sometimes examiners as well -- seemed so rooted in the current system and current way of doing things that they had difficulty formulating any opinion about PALM. They had difficulty conceptualizing what an improved system could and should be doing for them.

More often, however, a focus group would start out with one or two examiners (usually longer-term employees) expressing considerable praise for PALM -- what an improvement over the former card system -- the fact that it can locate a missing file plus-or-minus 90% of the time -- how did we ever live without it? -- it is the people who are screwing it up! Then gradually -- after discussing some of the system's inconveniences, limitations, and unmet needs -- the group often seemed to reach the conclusion that the system ought to be summarily dumped!

So why the shift? Apparently, one's view of PALM depends on one's frame of reference -- especially one's exposure to present-day, PC software. Against that standard, PALM appears outrageously backward and inefficient. Satisfaction levels with Commercial-off-the-Shelf Software (COTS) generally ranked in the 90th percentile while PALM users reported only a 69% satisfaction with the extent to which PALM meets their needs. If one wants a glowing review of PALM, one need only talk to an "old timer" who remembers life before PALM. But for an equally damning review of PALM, one need only talk to someone who has one or more computers at home. The latter class must be given more weight if the issue is: what should PALM (or its replacement) be providing, in the context of readily-available, present-day technology?

At least one commentator has suggested the question should not be, "How well is PALM serving your needs", but "How well is the current *process* serving your needs?" Indeed, it is all too easy to flail away at this 16-year old tracking system (which is actually remarkable for its continuing ability to meet PTO's needs in at least a basic way), while ignoring the issue of the underlying patent application process -- is it

as simple, efficient, speedy, rational, and customer-friendly as it can possibly be? After all, the tracking system only tracks and serves the process defined by others.

The latter view may be somewhat of an oversimplification, however. In fact, PALM now seems to be limiting the scope and speed of changes that can be made in Patent's business processes -- the reorganization of its workflow. Thus, PALM *does* affect -- in this case, actually *limit* -- the process, while ostensibly "serving" the process. Likewise, there is ample evidence that PALM's inherent limitations and inflexibility are taking a significant (but largely hidden) toll in terms of reduced customer service, file movement, pendency, examiner productivity and management effectiveness.

This is a consequence of PALM's "legacy system" rigidity that has only recently received widespread recognition in PTO. Unfortunately, PTO will have its hands full just keeping that legacy system patched together and functioning. There is little prospect for improved flexibility until the neo-PALM system is deployed in 1998.[101]

It is important to note a fundamental piece of history that was pointed out to us in interviews: PALM was not designed to meet end-user needs so much as to meet management's need to track productivity. So, in some ways, it is a welcome -- albeit unplanned -- turn of events that it meets some end-user needs as well as it does.

According to examiners and SPEs, PALM serves six major functions: (1) determining the current *location* of an application, (2) determining the current *status* of an application, (3) ordering an application, (4) finding any Copending or related (parent/child) applications, (5) furnishing the inventor/attorney's phone number and (6) providing individual and group level production statistics. In each of these functions, most observers find PALM's performance marginal at best.

Concerning Function #1, determining current application location: Most examiners claim that they have a relatively easy time locating a case within their own examining group -- they can find it more than 90% of the time in short order. But if the application happens to be outside the group, PALM falls short of pinpointing the exact location and the "hit rate" typically drops to anywhere between 20% and 70%, depending on the area in question.

The problem of misplaced files will continue to plague Patents so long as they use a system that tracks paper flow. Still, the addition of BCRs to PCs (an issue that has numerous associated security and logistical problems) would probably improve PTO's ability to pinpoint a given application, since more location codes could be

---

[101] Neo-PALM in this context refers to the PALM system that will operate in the open architecture, relational database environment on PTOnet, using modern programming tools and techniques.

developed and tied to individuals. It will also be more convenient for staff to wand cases from their desk.

The most frequently cited reason for the shortfall in location accuracy is that "people are screwing up the system" -- those people who fail to wand cases out before passing the folder along to the next hapless victim, who will be snagged with an error message on the PALM terminal when he or she wands it in -- unless he or she has committed to memory the proper numeric code needed to avoid the error. Another class of miscreants are those who snatch folders and waltz away with them without wanding them out of the location they took it from (e.g., Central Files) or in to the location they took it to (e.g., their office). In this case, PALM continues to erroneously report that a folder is still in the former location.

To some extent, PALM is self-correcting in that when a case is mis-wanded, the next person who picks it up will see the error register on the system and identify the location of the case. Problems arise, however, if no one else touches the case for an extended period of time. PALM is extremely vulnerable to human error. Examiners and clerical staff are often too busy or preoccupied to remember to wand cases. But these oversights are compounded by system-related problems and both factors together conspire to undermine PALM's effectiveness. We found that failure to wand folders is not simply the result of cussed laziness. There is a shortage of PALM terminals and associated BCR guns, the latter having steadily dwindled in numbers. Therefore, non-clerical employees in particular have to travel increasing distances to find a working terminal and gun in order do the obligatory wanding "in" and "out." Our survey indicated that only 71% of patent examiners were satisfied with the accessibility of PALM terminals.

PTO deployed about 30 PALM-on-PTOnet stations in March 1996. SIR plans to deploy another 250 workstations throughout the rest of 1996, but there are no plans, as of yet, to go beyond this point. PALM-on-PTOnet will essentially emulate the functions of "dumb" terminals, minus BCRs, and will provide only display capability to desktop PCs. Still, SPEs and examiners welcome this stopgap measure. The BCR functions will continue to be performed, mostly by clericals, from dumb terminals at least through end 1996. This raises some concern, because the BCRs PALM uses are difficult to obtain, although sources in SIR tell us that they recently acquired an additional 150 BCRs, which may hold them until PALM is redesigned and deployed over the network.[102]

As if PALM does not push "human factors" enough, it appears that terminals are "down" more often than anyone seems to realize. Participants of our focus groups

---

[102] Sources in the CIO also tells us that a recently established microcomputer contract includes specifications for new BCRs, which should last PTO for some time.

reported that PALM responded like a string of old-fashioned Christmas tree lights: if one goes down, those terminals nearby go down as well. While SIR officials tell us that PALM is connected in parallel rather than serial fashion, there does seem to be a problem here. While system administrators confidently proclaimed that PALM rarely has unscheduled down time or "catastrophic outages," the Patent Office as a whole reported only 57% satisfaction with PALM's overall reliability. Since PTO's expectations are unquestionably production-oriented and since PTO allows for non-production only in circumstances of "catastrophic" failure, what can an employee do? The diligent employee moves the workload along, with or without wanding. PTO is hoisted by its own petard, and the PALM system is left with another batch of inaccurate location and/or status codes.

Desktop PCs that access PALM via PTOnet will not be susceptible to serial outages ("the Christmas light problem") -- unless of course a local PTOnet server goes down. But according to current plans, many workstations needing a BCR will continue to be dependent on the existing terminals and guns until neo-PALM is deployed in 1998. Until then, it appears that workstations without BCRs will continue to be plagued by serial outages -- a problem never fully acknowledged or measured by the CIO or SIR, yet widely reported by clerical staff and examiners alike.

Even if users were faithful in wanding files in and out, PALM's "locating" function would still fall short for other reasons. For one thing, the system is too memory-strapped and rigid to support location codes that are sufficiently detailed and up-to-date. Some locations don't even have a code! Other locations have a code which is too broad and undifferentiated for the scope of that operation ("catch-all codes," "black holes"); obviously such codes are not too helpful. Other codes may be specific enough, but examiners simply don't know what they mean -- there is no up-to-date paper list of location codes; the only "list" is on PTOnet, which is usually accessed from desktop PCs away from PALM terminals. Some examiners pointed out that PALM *is* capable of assigning a file to specific employees *if you have the employee code and if you know how to do it.* Unfortunately, few employees have the code or, for lack of training, know how to use it. The neo-PALM system of 1998 will permit unlimited location code capacity. Ensuring that this "functionality" is incorporated into the neo-PALM design, however, it will require a specific request and advocacy from the Patent Office.

Finally, some examiners point out that PALM *does* show the last location from which a folder was wanded, but that does not always provide an adequate basis for locating a file or assigning accountability for any lapses, for reasons explained above. (Examiners also mentioned that PALM has no indicator that a folder -- like the proverbial check -- is "in the mail".) Others point out that PALM *does* have -- for the cognoscenti who know about it -- a contents screen that shows the case's "prosecution history". But the latter screen has transactions that show mostly *what* was done, rather than *who* did it and *when*. A typical application will be touched by no fewer than 65-70

people, but PALM does not have the capacity to track that number of touches for each case. Examiners want a neo-PALM system that shows the complete paper trail of all touches -- or at least the past 10 touches.

Since a full list of "touches" could be very lengthy, it is probably beyond the capability of the current PALM, but could very likely be incorporated into neo-PALM. However, implementing this "feature functionality" will require specific request and advocacy from Patents.

Concerning function #2, determining an application's status: examiners say that PALM often conveys application status only indirectly, through several separate screens, "triangulation" -- or not at all. All too often, one must simply get hold of a folder and review the contents to get an accurate view of its status. There are many parts to an application that may drift in and various actions that may be taken by either the examiner or the applicant/attorney at almost any stage of the process. Yet PALM is not geared to track specific *parts* of or *deficiencies* in the application, nor is it even able to flag the fact that certain important actions have been filed.

Examiners report that a case's status often changes -- for example, an "abandoned" case may be "revived" -- yet the system provides no timely notification and embarrassing consequences ensue. Production expectations are missed, performance evaluation and award criteria are not met, and both the examiner and SPE may wind up in the hot seat. To address this problem, examiners have offered the following suggestions for improvements:

- A feature that posts an alert on my desktop screen when cases are revived or when other changes of status occur with my docket.
- A flag that says, "there are related applications on file."
- A flag that says "continuation (or petition, or some other item) has been filed."
- A flag that says "paper x has been filed, but *not* matched with file."

Although 84% of examiners were satisfied with PALM's "inclusiveness" and 91% were satisfied with its "currency," many examiners in our focus groups expressed a need for more fields that indicate the presence, absence or status of necessary parts, such as drawings. PALM has only rudimentary capability to track whole applications and has virtually no ability to track component parts. Tracking specific application parts is well beyond the capability of the current PALM, but might be incorporated into neo-PALM, with more appropriate direction from the Patent Office. In any event, such capability definitely needs to be a part of any future electronic filing system, since the electronic record -- not a sheaf of papers in a folder -- will then constitute the primary, official record.

Moreover, the PCT has established, in effect, a simultaneous and parallel paper system that PALM has no ability to track -- another "black hole," so far as PALM is concerned. To address this problem, examiners want the capability and flexibility to track -- from beginning to end -- two or more parallel processes, each with their own required steps, as with PCT. PALM currently has no capability to do this.

Obviously there is huge room for improvement in PALM's ability to *discern* and *specifically indicate* an application's status, in all its (evolving) permutations. It is equally clear, however, that any improvement in this capability will require a system with far greater memory, flexibility, an open environment and continuing attention to evolving processes and user needs.

Examiners report that call volume concerning case status seems to be going up dramatically in response to recent changes in patent law and rules (e.g., 20 year term); PALM in its present form is not helping them cope with the increasing workload (PALM-on-PTOnet, though, will be a much-welcomed relief). Some examiners suggest that they should be out of the "phone answering business" altogether and -- in a move unnervingly similar to the not-so-successful experience at Trademarks -- delegating the task to support staff or to an automated system. However, the lesson from Trademarks is that neither support staff nor an automated system can effectively convey case status without a more modern and effective electronic tracking infrastructure.

Problems with responding to calls certainly persist, for a variety of reasons: (1) PALM is not accessible from the desktop to enable personnel to respond to calls without moving from their desk; (2) location codes are not always immediately translatable; (3) even if translatable, location codes are not specific enough in that they don't show everyone who has touched the application; and (4) even if translatable and specific enough, location codes are not always accurate due to failures in wanding. While PALM on PTOnet should help in the short-run, other issues will have to wait for neo-PALM. The CIO and the Patent Office should work together to provide specifications for neo-PALM and should identify ways to shield examiners from public calls, perhaps by creating a Patent equivalent to TAC.

Another suggestion from examiners is the capability to add notes concerning a case -- perhaps an open-ended "comment" field that automatically dates and gives an identification number to each entry and display it in on associated screens. This would serve as an easily-accessible "memory trace" for examiners and other users. Such capability would be under the current DMSII structure. But with PALM scheduled to be migrated to PTOnet and a relational database environment, this feature would be relatively easy to implement, given a push from the Patent Office. But there are a number of potential issues concerning the legal ramifications of such notes, even though it is frustrating to consider that a straightforward notation to the effect "Today I did X, Y and Z" would entail much visibility and vulnerability.

Concerning Function #3, application ordering: Examiners report that PALM has rudimentary ordering capabilities that it performs with selective amnesia. One examiner likened this feature to a person who when asked, "Do you know where my keys are?" replies only "Yes." Likewise, if a folder is in transit or in the hands of another office or person, PALM's ordering function says, in effect, "You can't have it." The system has no capability to establish a "queue" of people who want to see the folder or to take necessary follow-up actions to see that all parties are notified and that the folder is moved along immediately to the next person in line. Only one person at a time may have a file, so when the current user is finished, the folder goes back to "abandoned files" or "some other bottomless pit". The examiner who wants it has to rely on telepathy to know when this occurs or check frequently, enter the order, then wait perhaps several more days before the file is retrieved, sent to him or her and received. The net effect is that a folder that might otherwise have been retrieved in a couple of days takes a week or more. Once again, customer service "takes it in the ear."

To address these problems, examiners have suggested creating a system that does not just refuse to take an order if someone else has the file or if the file is in transit, but instead notifies the "someone else" that another person is waiting. The system should then ensure that the file is automatically sent to the waiting employee when the other person is finished with it. PALM's COBOL format and hierarchical database structure make these features difficult, if not impossible, to implement according to sources in CIO and SIR. But if PALM is truly to be redesigned along the lines of TRAM (i.e., a new relational DB structure with modern programming languages),, this feature could certainly be added. Yet, while such a feature was a popular among focus group participants, we have neither seen nor heard anything that would lead us to believe that this specific function will be provided in neo-PALM system in FY98.

In addition, examiners have suggested a feature that puts out an automatic search if the case doesn't show up where "wanded to" after specified period so that examiners or support staff who have a "lost case" will know that it is needed by others.

Concerning function #4, finding any copending or related applications: Examiners say that PALM provides only rudimentary help here, through inventor name and application serial number searches. In theory, there is no reason that PALM search capabilities (patents applied for) should be much different from those of APS (patents granted). Yet examiners say there is no comparison: it is as if PALM was never designed to be searched -- there is really no search "engine".

If the examiners' view is accurate (and this is always a problem with focus groups, given a pervasive ignorance of "hidden" capabilities and the fact that there may not be anyone in the group who can correct an erroneous assertion), PALM has no

ability to search on full application title, terms, date range or any other field except inventor name and serial number! Also, PALM cannot search abandoned cases, even though examiners say they occasionally need to do so. And, not surprisingly, PALM does not have the more sophisticated search functions that enable one to narrow or expand searches based on variant spellings or formats. The thrust of recommendations implied in the above findings are self-evident and compelling.

One PALM manager in SIR claims that the examiners are not fully accurate, and that abandoned cases since 1979 are included in PALM and are searchable by inventor name to the same degree as in other applications. The original complaint of focus group participants may reflect either pervasive misinformation on the matter or a need for abandoned cases prior to 1979. Whatever the cause of their complaint, examiners have been squawking about this problem for several years. Like other desired features, however, this feature is well beyond PALM's current capabilities and can only be implemented in conjunction with neo-PALM of 1998 -- assuming that it is advocated and negotiated by the Patent Office.

Concerning function #5, furnishing the applicant/attorney phone number: Examiners say that this was an overlooked item in PALM screen design. There *are* several PALM screens that convey the phone number, but these typically have to be looked up *as a finale to* other screens that convey only pieces of the puzzle. With PALM's requirement that users enter access numbers (e.g., employee or art unit number) for each screen -- having to go to yet another screen for the phone number adds insult to injury. "Reaching for the attorney's phone number is the natural consequence of almost any viewing of a PALM screen." Therefore, the phone number should appear on nearly all screens -- along with (2) the current application location (this may require "received in," "charged from," "charged to" plus dates) and (3) the current application status, preferably using full words as well as codes and in detail.

Discussion of this matter with SIR caused some consternation since SIR had recently implemented a change to PALM that went in the opposite direction -- serving the interests of large patent law firms at the expense of examiners. Specifically, the attorney phone number has been (or will be) deleted from PALM screens and replaced by a customer number (to identify the law firm that filed the application to expedite address changes). Examiners will now have to get phone numbers through a separate look-up, cross-referencing the customer ID number and law firm phone numbers. More investigation is needed, but it would seem that this is an instance where the Corps' representative did not fully take end-user needs into account.

Concerning function #6, providing production statistics at the individual and group levels: Most examiners agree that almost all required information is in PALM somewhere, but the struggle to access it is formidable. This was verified somewhat in our survey, where 84% of patent examiners expressed satisfaction with

PALM's "inclusiveness". But PALM's production statistics are mostly pre-formatted, hard copy reports distributed each week. These reports are distributed to supervisors and managers, in 37 "packages" and according to a carefully-controlled access hierarchy. Virtually everyone who gets those reports agrees that (1) many reports are unwanted, (2) others are only approximations of what they really need, (3) others require complete reentry of the data into a spreadsheet to be useful, (4) others are out-of-date and "stale" by the time they arrive and (5) all this paper takes up file cabinet space, but *must* be retained because it is not available on-line, on demand and for any specified period over the last two years. A miserable 32% of those surveyed indicated that they were satisfied with PALM's ability to work with other applications and software tools.

Electronic File Transmission would address this to some extent, but a thorough-going solution will probably need to await deployment of neo-PALM, with its relational database environment and easy report generation capabilities. It should come as no surprise, that SPE's and Directors want a system that eliminates weekly hardcopy "dumps" and provides instead the capability for more selective reporting, plus the capability to retrieve information for any time period up to two years back. SPE's and Directors also want the capability to download raw data according to user-defined selection criteria and transfer it directly into PC spreadsheets formats. SIR and the CIO are reportedly only "months away" from implementing a program that will allow SPEs to download production data via PTOnet, custom format it and print it locally. Without seeing the details of that program, it is not possible to assess the extent to which this effort will address user needs.

What did surprise us was the fact that examiners, too, want on-line reports that tell them "how they're doing." They want *up-to-date, on-line reports* that show their personal production for the current pay period and their current docket and cases due in order to better plan their work. They want on-line messages that alert them to changes in their docket (e.g., revived cases), in order to avoid "nasty surprises". They want to see, in effect, anything the SPE can see about their docket and production, to have a mutual understanding of the basis on which they will be evaluated and awarded.

But the information examiners want is reportedly blocked from them on account of a union objection filed on their "behalf" back in the early 1980's. Certain "historian" SPEs recalled that when PALM was being set up, the union was concerned that it would be used to "monitor" examiner performance ("1984" and "Big Brother" was just a few years away), so it obtained an agreement from PTO "on the examiners' behalf" to block certain kinds of PALM production reports. SIR representatives, present during a focus session in which examiners expressed this desire, were also thunderstruck that examiners actually wanted such information since it was their own union who had prevented them from getting it.

Obviously, the world has turned a few times since then and such an agreement -- if true -- appears preposterously out of step with the times and would be roundly repudiated by the current, computer-knowledgeable generation of examiners. These examiners understand the value of information for planning and prioritizing work, staying on top of rapidly-changing situations, doing the best possible job and -- yes -- "watching the score-board." PTO should accommodate them to the fullest extent possible.

Whatever the weaknesses of PALM, it is important to remember that the root problem is the fact that PTO's business processes are still paper-based, not electronic. No parallel tracking system, no matter how perfect, can compensate for the inherent inefficiency and "paper chase" of the current arrangement. Under that arrangement, PTO will always be a vast paper mill with the following characteristics:

- Applications and incoming mail are stacked everywhere, pushed around in shopping-type carts and bins.
- Application files are passed from desk to desk and building to building, with the strict requirement on each user to wand applications, so the "tracking system" can keep track of it all.
- Each application can be seen and worked on by only one person at a time.
- Examiners typically have to wait up to several days to get an application out of Abandoned Files and other repositories after submitting an order.
- Incoming correspondence and other component parts are not always united with the main application file on a timely basis. Many parts or whole applications are inevitably "lost" or separated in the sea of paper.
- Each application is handled by 65-70 people in a linear fashion, gradually wending its way through Patent over approximately 19 months.

It is hard to comprehend that these characteristics will be largely swept away by electronic filing, along with the need for a parallel tracking system. Electronic filing will mark a watershed as major as anything since the establishment of the Patent Office in the 1780s. Unfortunately, this "brave new world" will not arrive until the turn of the century, by 2002, "or with luck, perhaps a year or two sooner," according to the most optimistic observers. Until then, PTO must find ways to improve efficiency and reduce pendency -- at least marginally -- within the constraints of a paper-based system.

While electronic filing is several years away, PTO began PALM redevelopment in early 1996, with a target date of October 1998 to start deployment. Both PALM and TRAM will be developed with PAM and TIS in mind; will operate on open system environment using an SQL-RDBMS; will be model-based; will use C or C++; will operate on an HP 9000 series with HP-UX Operating System; will use Oracle Version 7 and IEF Composer to generate database and models; and will, of course, operate on PTOnet. Being "model-base" and data-centric, the new systems will

be able to evolve and eventually be integrated into their respective electronic filing system, PAM and TIS. This will eliminate much of the dilemma involved in investing in these systems, knowing that the reporting components will "live on" after the tracking systems are eliminated by electronic filing.

In earlier focus groups, we heard many allusions to PALM's basic rigidity, unfriendliness, and inefficiency. In the current series, we saw it close up -- and it's not pretty. PALM is a virtual time capsule that constantly reminds the user how rigid and non-user friendly computer technology was just 15 years ago. There is no Windows-type graphical user interface. There are essentially no menus beyond the "Main Menu." There are just codes, codes, codes -- command codes that the user enters to view each desired screen and other codes that appear on screens: status codes, location codes and error codes. Unfortunately, many of those codes are a complete mystery to users. Ironically, there is a location code list on PTOnet, but most PALM terminals are not near a PC that can access PTOnet. PALM communicates in codes, rather than plain English, because it was designed at a time when computer memory was at a premium. Among the patent examiners surveyed, only 57% expressed satisfaction with PALM's "ease of use."

Since 1988, PALM terminals have been capable of displaying error codes with "full translation" and possibly some diagnostics within a limit of 176 characters. This capability, however, has received low priority in the "programming queue" and has been implemented for only a few error codes. "Full translation" of error codes could very likely be implemented in conjunction with PALM-on-PTOnet in 1996 and certainly in conjunction with neo-PALM in 1998. However, this "feature/functionality" will require specific request and advocacy from the Patent Office.

Aside from the code-drivenness of it all, the underlying cause of much of PALM's user-unfriendliness is the fact that "PALM doesn't remember anything." For example, PALM doesn't "remember" the user's employee number, which means that the user must reenter his or her number with each screen. Likewise, PALM doesn't "remember" the last several screens pulled up or the next logical screen in a sequence. To go to *any* screen, the user has to back out and reenter the appropriate string of codes. In other words, PALM can't page backwards! In fact, PALM can't backspace, either. If the user transposes a couple of digits in a code, for example, he or she has to abandon the string and reenter it.[103]

Oddly enough, PALM pages forward but not backward. Examiners must reenter a series of codes to return to a previously-viewed screen. When told of examiners'

---

[103] PALM treats each screen as a new transaction, rather than simply being more deatailed about a given record (file). For this reason, a "page back" is, to PALM, just another transaction in which all criteria must be re-specified.

frustration with this limitation, one PALM manager in SIR expressed surprise that examiners would want to page backwards. That manager's tunnel vision may result from having spent so much time with PALM. New PALM users seem much less tolerant of such inflexibility. A page back feature could probably be implemented -- even on the existing system -- in relatively short order. This is also an apparent case of an important but straight-forward item "slipping between the cracks" due to lack of effective advocacy for the end-user.

One of the items that examiners want most ardently is a "save screen" feature that would enable them to review the last 4-5 screens. While this is routinely available in Windows-based software nowadays, we were told that it would be practically impossible to implement on the existing PALM.

Another cause of PALM's user-unfriendliness is the fact that "PALM doesn't link data (or screens) together." In other words, PALM doesn't enable the user to double-click on a particular item (e.g., a serial number) to pull up a related screen. The user must leave that screen and reenter the appropriate codes to get to the next screen. Since a common task such as assessing current case status may require looking up two or three screens, the process of entering a series of codes before pulling up each screen is both time-consuming and maddening -- especially when an attorney or applicant happens to be on the phone.

The open architecture neo-PALM system will have relational database software that will enable users to perform many functions, such as double-clicking on items to view more information, scrolling capability, pop-up windows and dialog boxes that users have come to expect in Windows-based software.

Many PALM screens just don't have all the pertinent information. For example, the "2952" screen doesn't have the attorney phone number, what many examiners naturally reach for next after viewing the screen. Bad enough that the information is inadequate, the examiner must then go through more water torture, entering additional codes to view other screens. This frustration was reflected in the examiners' low satisfaction score (67%) estimating the extent to which PALM meets their overall needs.

While some users suggest that PALM is well 'evolved' to user needs, a few examples like this raise the "criterion problem": compared to what? It seems that even the most cursory review of user needs could not fail to produce screens that are more useful, convenient and readable than current ones. Add to that rudimentary functionalities available in virtually all Windows-based software (backspacing, paging forward or back, double-clicking on an item appearing in the display to jump to a related document) and most examiners would believe they've died and gone to heaven.

The fact that PALM currently works through only a finite number of dedicated terminals ensures that the system is inherently inconvenient and difficult to get to. Around mid-1994, Patent examiners described their typical workday as a series of "shuttles" from one terminal to another, one database to another -- APS text, APS image, the "shoes", blocks of microfilm, foreign patent databases, commercial databases, literature describing prior art, and of course, the venerable PALM system. Overall, this picture has not radically changed since then -- except that APS text and other examiners tools are now available on desktop PCs, where examiners increasingly expect to get all the information they need to plan and conduct their work.

It is particularly irksome then -- when an examiner needs to look up case status, perhaps to respond to a call from an anxious applicant or attorney, or to search for copending cases -- to have to go down the hall to forage for a PALM terminal or traipse into an SPE's office -- some of whom are reportedly "territorial" about use of their terminals -- only to finally sit down at the terminal and put up with the frustration that PALM dishes out.

PALM managers have been very resourceful in balancing the distribution of available terminals, but they are clearly running out of "play". Generally, a terminal is placed in Central Files, another at the Docket Clerk station, one in each SPE's office and others in some common areas to accommodate each art unit (a ratio of about one terminal to 12-20 examiners). A certain percentage of terminals, however, will be "down" at any given time (43% of patent employees expressed dissatisfaction with PALM's reliability). Also, the supply of terminals is dwindling, while the number of examiners is expanding. This was reflected in our survey, where only 71% of examiners were satisfied with the availability of PALM terminals. The situation is further compounded by the fact that various reorganizations of the art units are being discussed and the rigidity of PALM almost certainly throw sand in those wheels.

Despite PALM's rigidity and unfriendliness, examiners are most eager to have it on their desktops via PTOnet. In focus groups, it became apparent to us that PALM terminals have two distinct functions: (1) for input, to wand cases through the bar code reader (thus "tracking" the paper file) and (2) for output, to display current case status or location. Function #1 is typically performed at various pre-exam sites, at the group's reception area and in the SPE's office. Function #2 is the function that examiners need and want most and does not require BCRs -- it only involves the display of information. (We are told that examiners typically wand items in or out "a few times a week", but they look up case status or location "several times a day.")

Piping PALM data onto examiner desktops will eliminate wasted time and motion involved in shuttling between offices or down the hall to get to a terminal. Of the patent examiners who participated in our survey, 54% indicated that PALM on the desktop

would have a high to major positive impact on their day-to-day work. (PALM-on-PTOnet will not require that hundreds of additional BCRs be attached to PCs, since PCs will access PALM mostly for display purposes.) However, there are certain classes of clerical workers -- such as Legal Instrument Examiners -- who do not have PCs on their desktops but will need them and will need to learn to use them, when the PALM terminals go away.

Even if PALM is not thoroughly "cleaned up" in the near future, just getting it on the desktop and junking the terminals once and for all will be received by examiners as a major breakthrough.

According to managers in charge of PALM, PALM-on-PTOnet will begin in July 1996, but will not be fully deployed until December 1996. PTO will deploy the first 200 PALM-on-PTOnet stations in July 1996, with the remaining 2,000+ stations scheduled to be deployed concurrent with the desktop workstation deployment. This arrangement will essentially replicate current PALM functionalities, but will enable the use of desktop PCs in lieu of dedicated terminals -- no doubt, to the great relief of users. This shift will happen none too soon, because the dedicated terminals and associated BCR guns are difficult to obtain commercially and are steadily conking out throughout Patents. (New terminals and guns are part of PTO's End User Computing Buy -- proposals due January 1996, award expected May 1996). While PALM-on-PTOnet will be used until neo-PALM is deployed in late 1997, we hope that at least some of the items appearing in this can be incorporated into PALM-on-PTOnet without inordinate investment.

The prospect of examiners and other Patent employees using their PCs and PTOnet to access PALM raises anew the question of whether PTOnet is able to handle the increased traffic. PTO continues to make investments in new servers (for local loops) and high speed switches (for the network backbone) that should continue to improve network capacity. Interestingly, network managers seem more concerned about the incremental traffic that will be driven by PTO's deployment of additional image workstations, which require exceptional bandwidth that network managers expect will tax the network more than PALM-on-PTOnet. But that expectation is based on the belief that "examiners don't have much interaction with PALM now." While this is true -- because PALM terminals are inconvenient and the system is not designed to search cases, receive notes, show personal productivity and docket status, provide on-line alerts for changes of status or in sum be a true desktop tool -- present assumptions may be overtaken by unforeseen future usage patterns.

Clerical workers -- who typically wand large batches of applications in and out, many times a day -- are thoroughly dependent on the bar code readers, and have developed their own personalized "address boards" of bar codes. While PALM terminals will be gone by Fall 1996, bar code technology is here to stay. The

potential applications of bar code technology at PTO seem to be expanding and PALM managers should investigate ways to facilitate these. We are informed that there is some ambivalence, because bar code labels can be photocopied and subsequently used to defeat PALM's security. This risk must be weighed against potential benefits.

We would only report that clericals and examiners would like to see more bar code "action boards" (in lieu of PC keystrokes, for the less computer-literate), "address boards," or -- better yet -- sheets of bar code stickers that can be selected and arranged anyway the user wants. Clericals and examiners also want sheets of bar code labels sent to applicants or their attorneys for easy identification of the correspondence they send in. (It is possible that this is already being done on a limited basis -- in any event, everyone involved seems to love it.)

Such boards -- used primarily by clerical support staff to "wand" cases to commonly-used addresses or for performing repetitive transactions -- reduce the need for keystrokes and help improve productivity. If this need is widespread, wider distribution of these boards should be advocated by the Patent Office.

PALM manuals -- both examiner and SPE versions -- are said to be "a mess" and "falling apart." The manuals basically have not been changed for several years, except for inserts here and there. In recent months, even the inserts seem to have been abandoned in favor of E-mail messages. Users receive the messages almost immediately, but they are left with "a million pieces of paper," all unorganized, all impossible to reference and use when needed.

Examiners point out that there is not one page in the manual and insert/E-mail collection that lists and describes all of the screens. Granted, PTO may need to partition PALM information from one employee segment to the next -- yet it is remarkable that a screen list does not exist in even partitioned form.

Likewise, PALM manuals contain no simple and concise "how to's". Some PALM troubleshooters and SPEs have stepped into the breach by creating "cheat sheets" (commonly-used screens, commonly-used codes, how to's, etc.) that can be taped on the wall near PALM terminals for reference. Unfortunately cheat sheets never see the light of day outside a particular examining group and the better ones may be ripped off. Some examiners suggested that the PTO might be better off abandoning manuals and assigning a task force to collect and distribute the "best of the best" cheat sheets.

The need for special, intensive PALM training should largely "go away" when neo-PALM is implemented since it should be so user-friendly that it will not require extensive training. Until then, PTO cannot expect to deliver uniformly high-quality, effective training through SPEs -- that merely perpetuates the current state of

ignorance. PALM manuals have been on PTOnet as of about 6 months ago, which has eliminated the logistical nightmare of trying to maintain hundreds of hardcopy manuals. It is likely, however, that many examiners are not even aware that the PALM manual is available on PTOnet and fewer still will be motivated to read it on their desktop PC (a safe assumption, given that only 33% of all PTO users receive information about automated systems from electronic or non-electronic newsletters). A person encountering a problem at a PALM terminal cannot access the manual at that moment and there is usually no PTOnet connected PC in the vicinity. Moreover, the underlying criticism of the manual's wordy, unhelpful quality remains valid and in need of remedy. As a stopgap measure, PTO should take seriously the suggestion that a committee select the best PALM "cheat sheets" floating around, hang them next to each terminal and update them periodically.

Examiners and SPEs report the all-too-familiar story that PALM training has deteriorated to the point of virtual non-existence. Nearly every focus group told the same story: Once upon a time, there was a good Patent Academy that gave thorough PALM training to incoming examiners. But the Academy had to drop the training, because of budget cutbacks so the Academy delegated PALM training to SPEs. The only fly in this ointment, however, was the fact that an estimated 50% of SPEs know little or nothing about PALM and are in no position to train. In some groups, a resident "PALM troubleshooter" has stepped into the training breech and has even produced and distributed a good "cheat sheet" or two. But in general, PALM training is very uneven -- an examiner's expertise with PALM depends largely on his or her SPE. In the survey, PALM training received overall low marks. Only 34% of Patent employees were satisfied with the availability of training (32% among examiners alone) and only 47% were satisfied with the quality of training (46% among examiners).

But many patent examiners and SPEs say that PALM training and PALM manuals are not the real issue; the system itself is so hopelessly obscure, rigid, and non user-friendly, that it is long overdue to be replaced. Once PALM is replaced or redeveloped, and brought up-to-date (Windows environment, menus, double-click go-to, etc.), the training issue will "practically go away."

When asked what impact an "enhanced," 1996-style, neo-PALM system would have on their work, patent examiners were quick to reply that it would enable PTO to deliver the quality of service that is so often talked about. Examiners conceded that such a system would undoubtedly have *some* positive impact on productivity, but that impact might not be huge -- and in any case, PTO ought not position the "case" on the basis of being able to drastically increase production or drastically cut staff! Instead, examiners emphasized that such a system would result in fewer lost folders and parts, fewer missed deadlines and a more prompt and reassuring response to the question, "What's the status of this application?"

While most examiners see the need to replace PALM as soon as possible, many are also concerned that the replacement may not be fully and carefully tailored to their needs. "Historian" examiners and SPEs pointed out that PALM's start-up in 1980 was unique -- an entirely in-house effort, spearheaded mostly by former examiners who knew the job and its needs. While it would be impractical -- even inadvisable -- to develop the new 1996 PALM system on the same basis, PTO should take all steps necessary to provide maximum user input, and to consider user needs not only thoroughly, but *open-mindedly and creatively*. Some examiners described a "mind set" that sometimes exists among systems analysts who scoff at their expressed needs. They say that in the past, there have been too many situations in which too much energy was wasted explaining why "it can't be done"; and there have been too few zealous advocates. PTO should go out of its way to see that such people are not involved in the 1996 neo-PALM development effort.

Chapter 5: MANAGEMENT ISSUES IMPACTING TECHNOLOGY AT PTO

This section has a broader purpose of raising or reiterating some management concerns that traverse the more localized day-to-day issues reflected in focus group discussions and the formal survey findings. These issues are matters of obvious concern to PTO executives and senior managers and a number of significant initiatives have been undertaken during the course of this year-long review. The most recent (December 1995) version of the CIO's SITP formulated programs for addressing most of the issues that were technology-based. However, many challenges transcend the ability of the CIO and, in fact, many barriers are rooted in statutory requirements and government-wide policies. This section touches on some of these matters. This section melds together information gleaned through a review of PTO documents, key informant interviews, focus groups and the formal survey and suggests the implications of these findings across the agency.

PTO clearly cannot fix all -- perhaps even most -- of the problems described here within its current scope of power and authority. If PTO is to realize its hope of substantially modernizing its information resource management infrastructure, the changes that are so obviously needed will require Congressional and Executive Branch re-engineering to enable it to make the leap into the 21st century.

The bottom-line challenges for management

PTO must continue its business process re-engineering in a thorough, aggressive and imaginative way in order for "office automation" efforts to produce all the positive results PTO aspires to achieve. Perhaps PTO employees are not the best authorities to address the complexity of the patent and trademark application process and the extent to which it could be streamlined, simplified and automated. Many employees seem so steeped in the current way of doing things that they often seem reluctant to consider new ways of getting work done.

However, those many examiners and systems managers who were inclined to think about such matters in a more analytical and "what if" manner, suggest that the present application "pipeline" has "grown like Topsy," and now more closely resembles a Rube Goldberg plumbing system. To be sure, much of character of the pipeline is the result of statutory mandates, international agreements, or the new contractor involvement. But in spite of these bureaucratic strictures, there is still opportunity for simplification and "office automation" in the true sense of the word.

It goes without saying that a systems re-design cannot proceed without a clear understanding of what the "new" (and hopefully simplified) business process will be. It

also goes without saying that internal and external user requirements must be thoroughly understood and specified and no related request for proposal (RFP) can proceed until this has been nearly fully completed. Based on the evidence available to us, it is unclear whether the latter ingredients are in place.

In addition, PTO must ensure that ongoing business process changes are perpetually monitored and incorporated into systems development efforts. The PTO is in a highly evolutionary state as it takes an expanded global leadership role with the possibility of "government corporation" on the horizon. The organization will undoubtedly endure numerous upheavals in work processes that will in turn have a great impact on office automation.

The CIO must have ample resources to implement its vision for how technology will be employed in the coming years. The upcoming SDM omnibus contract is intended to allow PTO maximum flexibility to choose whatever skilled labor it needs in the future to implement a fully modern fully electronic environment. The strategy inherent in the contract will have the effect of enlarging the responsibility of the CIO -- even while simplifying its contract management efforts -- so that it will become the epicenter of all system planning, design and development.[104] In addition to the flexibility promised by the SDM, it should also help bring about additional control when coupled with the signing of the LCM policies.

However, the day-to-day impact of managing this contract in a way in which all of PTO's objectives are met will place a new level of responsibility on the CIO. Whether or not the CIO can achieve its objectives will depend largely on forces and decisions outside its control. An obvious and key requirement is that adequate resources are allocated to support the efforts envisioned for the future. The transition from legacy systems to open modern client-server environments is often a messy affair in any large organization -- but even more so in the context of a large government agency. The CIO has stressed the need for 44 additional staff over two years and more funding in order to implement the strategy that office has developed.

PTO has recognized the need to intensify efforts to introduce greater customer orientation into both the development and evaluation of all aspects of office automation. Poor communication and collaboration, coupled with a lack of trust between the end-users and the various organizations which supposedly represent their best interests, were central themes in our focus groups. Some of the underlying struggles between various organizational units are highlighted in a larger section of this report, but suffice it to say here that most end-users are not happy with the amount of participation they have in the systems development process.

---

[104] The SDM contract will reduce the overall number of development and maintenance contracts from the current level of over twenty to one.

As a result of earlier findings, PTO's management has already reacted with a commitment to revamp its organizational structure in such a way as to improve on-going participation in all aspects of information systems development and to give more focus to quality service assurance from the point of view of the customer.

PTO's executive management must clearly delegate responsibility to appropriate organizations and define the parameters of authority of all information-related units in order to satisfy end-user requirements. At the time of our focus groups, many commentators criticized the effectiveness of all the various "surrogate voices" they believed should represent their best interests in the technology arena. The CIO, SIR and union leadership were all in the cross-hairs at some point during our interviews with employees who sought to take aim at potential culprits. The catalogue of complaints included: insufficient training, inadequate support for maintenance and point-of-need help, a dearth of planning, and abysmal communication. While there is more than one explanation for these various problems, PTO's senior management was faulted in general for historically failing to empower appropriate staff to maintain and support its information systems and to hold that staff accountable for the results.

At the heart of this discussion was the need to better define responsibilities between CIO and SIR. At the time of the focus groups, both organizations were competing for control over a number of PTO systems -- PALM, PTOnet and APS. SIR staff tended to describe the relationship as one in which the CIO should act as a building superintendent -- making sure the lights got turned on and the toilets flushed -- while SIR should determine who can enter the building and what the building should look like. This analogy implies that SIR should control the data and specifically the needed enhancements to systems, while CIO should ensure that the systems work properly.

This might be an adequate arrangement if the parameters of authority were more clearly delineated. But numerous sources told us during the late 1995 meetings that this was not the case. Many different organizations and groups reportedly purchase and install hardware and software on a regular basis, leaving the CIO in the awkward position of having to support any and all applications that may be thrown on the network.

By the time of the writing of this final report, a Memorandum of Agreement was being developed to ensure that these lines of authority and responsibility were made clear to everyone involved. Such an agreement should facilitate a broader understanding regarding the roles of CIO, SIR and others.

Because different organizations within PTO have tended to purchase and install software and hardware without the knowledge of CIO -- which must ultimately support these tools -- there is an inclination on the part of front-line users, especially examiners, to complain that CIO is trying to yoke their creativity and to be overly rigid whenever it attempts to impose a standard. The CIO rightly points out that they must have some control over the process if they are to provide effective support. Although some progress is being made, there is still some underlying stress and misunderstanding between the CIO and the user community around this issue.[105]

The Examination Toolbox, started in FY95, is an important effort to address this problem by standardizing the process of expanding the tools available to examiners. It does so by supporting and making homegrown applications, that are deemed to be of widespread use, easily available. But end-users still do not fully understand the practical need for the documentation required by the CIO and tend to characterize it as the CIO "dragging its heels."

In response to such accusations, the CIO recently reviewed its LCM requirements and issued revised guidelines. However, chances are that even if these revisions result in less burdensome requirements, they may still be seen by examiners as unnecessary and obstructionist. The CIO needs to do a better job of communicating to the examining corps not only what standards are in place, but why they are needed and useful, and what the consequences will be if PTO fails to stick to the standards.

Relationships between management and labor groups should become more collegial and less contentious regarding the positive possibilities provided by PTO's technology program. One of the underlying principles of BPR, among other basic tenets such as a customer-oriented processes and worker empowerment, is the heavy use of technology as an *enabling* tool. Within newly designed organizations and structures, front-line workers should embrace technology as their *friend* and welcome the flexibility and freedom that it offers. For the most part, this appears to be the case at PTO. In focus group after focus group in the both the current study and the APS review, workers clearly indicated that they are becoming increasingly dependent on technology (to the point of taking it for granted) and were eager to move to a higher plateau of capability, usage and training. Over 85% of all PTO employees spend more than two hours a day in front of some kind of computer terminal. By and large, employees are very positive about the technology they had in their work space with one glaring and important exception: An overwhelming majority (70%) are dissatisfied with

[105] The CIO is now publishing an Office Automation Services Guide that will be distributed to all PTO employees electronically. In this guide, a chapter focuses on software and hardware procurements and defines what types of hardware and software can be purchased and how they should be installed. The CIO has also been working with the Office of Procurement to ensure that requisitions are reviewed for compliance with CIO standards. Procurement has now established a procedure to reject requisitions which contain hardware or software that is not approved for use by the CIO.

their level of participation in how information systems decisions are made. The paradox is that while employees are generally satisfied with the ends, they are dissatisfied with the means.

Union leaders we interviewed were generally not, however, inclined to embrace the idea of technology as an enabler, even in terms of the extent to which it improves communication as illustrated by the mass popularity of E-mail. Paradoxically, the union have successfully negotiated an exemption from the requirement to use electronic tools while they simultaneously demanded -- and won -- the right to ensure that staff with the most longevity be awarded these coveted tools!

Any agency-wide automation program has to address the business needs of all staff without regard to organization assignment or to status. Convincing union leadership of the need to re-define its own agenda in light of recent trends may not be easy, but if there were better recognition of both the value and the inevitability of automation -- and the widespread dependence -- everyone could better focus on how to improve, rather than eliminate technology.

No one we interviewed minimized the unrelenting and unforgiving conditions under which the professionals at PTO work. Although they are highly trained -- most with graduate or professional degrees -- their production standards are sometimes not unlike those of garment piece workers who are required to stitch together "x" shirts in a given hour. This fact alone makes them all the more dependent on technology and all the more outraged when their resources are inadequate or not well-supported. Their frustration inevitably gets vented on PTO's senior managers, who themselves have no control over production mandates set in recent years by Congressional fiat -- a situation that mutually enslaves both management and labor.

Until PTO gives more attention to training both Patent and Trademark examiners in the fundamentals of searching strategies on the proper use of the search systems -- no matter how good -- these tools will be used more as a crutch to perform faulty and incomplete searches; "office automation" will be a way of papering over deficiencies in the way examiners search. Towards the end of the focus group series, we talked to external users of X-Search, mostly independent trademark searchers, some of whom had formerly worked at PTO. Their consensus seemed to be that Trademark examiners perform only a cursory search, utilizing simplistic strategies that are almost certain to leave major gaps in the records examined. One commentator described a study done by outside panelists that pulled a sample of applications granted and looked at the paper trail of searches performed and the implicit search strategy used. The study found that a majority of the searches were seriously deficient.

One might be tempted to dismiss criticism that comes from a group that earns their living by second-guessing (or pre-guessing) the examiners' decisions. And, in fact, sources in PTO countered that examiner searches on X-Search were longer than that of the public.[106] However, it may be more constructive to consider the differing perspectives: examiners are charged with checking the record for basic registrability and are under strict production quotas. External searchers are charged with protecting client interests -- including potential problems of infringement or dilution -- to a degree that goes well beyond the mission of examiners. Not surprisingly, then, external searchers go to much greater lengths in their search, using tools other than X-Search and TRAM, including microfilm, paper files, and commercial databases to cross check their results.

But even taking into account these differences in mission and perspective, some searchers who formerly worked for Trademarks find fault with the quality of examination for these reasons:

- Examiners "don't always have a sense of what is registered." To use the paper files, examiners need a sense of where things are physically located and must perform the unenviable but necessary task of shuffling through stacks of paper records to locate similar marks. Though tedious, this process often is more thorough. With the electronic system, records are hidden, especially if misclassified. The only way to avoid skipping over potentially relevant records is through an effective and exhaustive search strategy.

- Examiners use search strategies to reduce hits to the point that they only have to actually view a limited number of records, say 15 or 20 documents. Outside users tend to perform more exhaustive searches. For example, one searcher indicated that he may look at more than 100 documents during an actual search.

Some external searchers we interviewed claimed that several times a week they come across cases that have been poorly searched. In some cases, the search strategy was narrowed to the point that it pulled up only a few hits. In others, the strategy was broader, but still failed to pull up relevant documents because it was not varied enough. The searchers pointed out that for their business, missing a relevant prior trademark can mean a malpractice suit or losing a client. For examiners, the same error might mean, at most, a "point raised in an employee review."

External searchers said that PTO seems to operate on the self-serving view that "constructive notice" and the opposition process will catch trademarks that may have

[106] External users all noted that they relied primarily on "the shoes" and used X-Search to double check or cross check their findings.

been improperly examined. Therefore, they claim it is inadvisable for PTO to "over-engineer" its examination system. Concepts such as "excellence," "quality services," "the customer first" are viewed as mere shibboleths.

Based on the information available to us, it appears that there is room for improvement in search strategies carried out by examiners and in the training and instruction that would make it happen. (Although we would not expect Trademark examiners themselves to be the most vocal critics of their own search strategies, many that we spoke with volunteered that they had received inadequate instruction on the subject.) We strongly suspect that the same situation holds true in Patents, but with more variability across art areas and groups. The APS survey found that "training on search strategies" received one of the highest endorsements as a "needed" item.

This simply illustrates that even the finest search engine devised by man will fail to turn up the appropriate hits if the "engineer" is ignorant of how to use it. Along with refining its search-and-information resources, the PTO must also ensure that examiners have a good sense of how to use them -- on an overarching, strategic level, as well as from a "button-pushing" viewpoint. Otherwise, the tools risk becoming mere wall paper for a search process that is fundamentally flawed and incomplete.

Until PALM and TRAM are replaced by all-electronic application management systems, "office automation" will mean little more than a collection of PC-based tools and Band-Aids that prop up a massive paper mill. There is no question that the mainstream activity of the PTO is application processing and examining -- over 220,000 applications in Patents and 175,000 in Trademarks in FY95. The fact remains, however, that in the closing decade of the 20th century, these applications are processed and examined using paper files passed from office to office over more than 19 months in Patents and 16 months in Trademarks. There is no automation of the paper-crammed files themselves, only semi-automation of some ancillary operations through tools such as Action Writer (Examiner Actions), MPEP, Trademark's ID Manual, PCTS (Patent Cooperation Treaty System), and Desktop Procurement. The search systems, APS and X-Search, are not integrated with their corresponding tracking databases (nor are the commercial databases) and they are somewhat limited by the quality of data entry and of classification and image coding.

Finally, PALM and TRAM track the movement of the main paper file only in a crude way and report mostly aggregate statistics through reams of printout sent weekly to hundreds of managers throughout PTO. Suffice it to say that these archaic, COBOL/DMSII systems cannot provide a platform for significant enhancements that will allow true automation of PTO's major business processes. Until PALM and TRAM are replaced by all-electronic application management systems -- written in modern programming languages, in an open-architecture, relational database environment --

PTO's "pipeline" will continue to resemble a large paper mill and "office automation" will be an off-line activity that occurs only at the margins.

PTO has made substantial progress in recent months toward its goals of (a) providing state-of-the-art PCs and printers to all employees; (b) choosing and supporting a standard suite of up-to-date, off-the-shelf, "core" software; (c) providing universal connectivity to a reliable, robust network with sufficient expansion capacity; and (d) providing maintenance and support services for the hardware, software, and network elements mentioned above. Still, the infrastructure for "office automation" is not fully in place. Trademark focus group participants said they were equipped with reasonably up-to-date 486 PCs and later-model local printers (an exception being the notoriously antique and ill-maintained TRAM terminals and printers). But the situation at Patents is not nearly so rosy: the majority (61%) of PCs there are still 386 vintage or older and this has the unfortunate side effect of dictating that the software on PTOnet's servers is often two or three generations behind, which in turn causes many irksome and disruptive ripple effects. Clerical staff at Patents tend to inherit antique hand-me-downs. Dot matrix printers still abound. It appears that the process of upgrading desktop hardware at Patents is more phased-in, and stretched-out than it is in the smaller Trademark group.

Concerning software, our recent focus groups indicated that there is considerable inconsistency concerning the software applications that are available from group to group. Some standard applications (word processing, spreadsheet, database, presentation graphics) are one, two, or even three generations out of date. Evidently, this has influenced the prevalence at Patents of 386 PCs -- slower machines ill-suited to handling the latest graphics-rich, RAM-demanding software. If the latest releases were used, PTOnet would slow to a crawl, particularly during the afternoon, when the network tends to slow down even under more favorable circumstances. MS-Word is the primary word processing package throughout PTO, but WordPerfect is also supported, leading to incompatibility when documents are transmitted across organizational boundaries.[107] These problems are exacerbated when employees are not trained on conversion between formats.

The PTO continues to take steps to enhance the capabilities and management of the network. By FY98, it will have upgraded its file servers and improved network bandwidth and speed. In addition to the infrastructure enhancement, however, the PTO must continue to upgrade its network maintenance and service staff. All of this may take some time and the practical results may not be immediately apparent to end users. Nevertheless, the CIO has taken concrete steps to resolve structural problems with the network.

---

[107] In Trademarks, MS Word is prevalent while in Patents, WordPerfect is more popular.

Lastly -- concerning support services for hardware and software, and fielding of calls to the Help Line -- there have been several initiatives in the past months to improve service to front-line employees. While we heard reports of non-working and badly maintained equipment, a lack of knowledge among Help Desk staff when fielding calls, "passing the buck", slow response times and multiple visits to fix a single problem, reports were apparently exaggerated because, overall (73%) of all survey respondents were satisfied with the support they received from the Help Desk. This satisfaction rate may well improve as the Help Desk upgrades its automated systems, as it is doing now. However, at the time of our focus groups, the software used by the Help Desk neither provided an accurate count of incoming calls to allow ACTO to accurately measure or predict work volume, nor did it accurately classify incoming calls.

Until PTO implements a training program that ensures that (a) all affected employees have attained a minimal level of computer skills, and (b) employees are fully and continually trained on all of the information systems and resources available to them, "office automation" will be an optional concept that applies only to an elite, self selected segment of the workforce. Trademark focus groups confirmed a Patent finding (from the APS study) that there is enormous variability in computer skill and expertise among examiners and clerical staff. The variability, however, appears to be more extreme at Patents, where certain "technophiles" among Patent examiners have become "power users" who demand data resources that meet or exceed current market standards. Some of these "power users" have grown impatient with what they perceived as the snail's pace of development of PTO's technological resources, so they bring in their own hardware and software and develop "home-grown" programs to solve daily problems. User-developed software tends to give systems developers conniption fits because the software is usually not sufficiently well documented to be supported on PTOnet. We encountered relatively little user-developed software at Trademarks.

However, at both Patents and Trademarks there is a significant segment of employees (even among examiners) who confess to having virtually no computer experience prior to working at PTO. Some of these people have no knowledge of basic Windows operations. (There is that unforgettable story of a new trainee who waved her mouse around in the air to try to make it work). Some of these employees have no knowledge of basic file maintenance and "housecleaning". Therefore, they save everything, purge nothing, and have been known to bring the network down when they dump the contents of their hard disk at the end of the day.

Amidst this backdrop, PTO's training effort has been minimal across the board. Patent examiners get some initial APS training, but little or no refresher training. As a result, the average examiner knows only a fraction of the "bells and whistles" available on APS. At Trademarks, examiners also receive initial X-Search training, but its quality depends largely on the competence and motivation of the individual's supervisor and

there is little or no update training. At both Patents and Trademarks, more than 90% of staff work with PALM or TRAM on a daily basis, yet it appears that a majority had absolutely *no* formal training. There are few PALM or TRAM manuals in circulation. At Trademarks, it appears that lack of TRAM training -- a lack of training on consistent procedures -- is the cause of a fair number of "missing" files. Throughout PTO, there is continual, unabashed reference to the "oral/folklore" tradition in lieu of formal training, as the basis for most systems knowledge. So long as this is the case, office automation will almost certainly fall short of its full potential.

Future information systems should become easier to learn, easier to use and as well documented as those currently found on the shelves of software shops throughout the nation. Some of the most common descriptors that come out of focus groups -- whether about APS, PALM or TRAM (X-Search is a notable exception) -- are "rigid," "unfriendly," "unforgiving," "full of sharp edges," "hard to learn," "hard to use," "code-driven," "arcane," "lacking in any uniform look or feel," "lacking in any useful help functions or prescriptive advice," "not seamless," "not intuitively obvious," or "not user-oriented." The CIO has apparently recognized this problem and is moving to convert APS and associated software to run under the reassuring Windows look and feel. However, PALM, TRAM and other systems are glaring relics that cannot be converted to Windows without significant rewriting of code.

Recent efforts to shelve or upgrade the COBOL-based legacy systems and the move towards a standard set of software tools with a Windows interface should help alleviate these concerns. While helpful, however, an intuitive interface is no replacement for training. Users may be proficient enough on a system to "get by" but may be unaware of features that would enable them to perform their work faster and more efficiently.

There needs to be better coordination of training needs between the CIO, the Patent Academy (which could work up front with the CIO to identify overly-sophisticated, user-unfriendly features as well as to gauge the level of required training) and the individual business areas. Since examiners have -- and may always have -- limited time to charge to training, innovative ways must be found to assist them, like videos, CBTs and CAIs. As one PTO official noted, training is driven by the cost of time away from production and forces PTO to focus on the immediate need: "get as many trained with as little cost as possible."

PTO is thus failing to set up the building blocks which can only come from solid initial training. This training will enable examiners to understand basic system structures so they can build on that knowledge and more easily learn enhancements. As it stands now, PTO confronts a large learning curve among its end-users for each new system that it introduces.

Until PTO can provide more seamless integration of its existing information systems and resources (TRAM with X-Search, PALM with APS, commercial databases with everything else), "office automation" may still seem like an endless series of log-ons, log-offs, enter-another-user ID, copy-results-on-the-back-of-an-envelope, scuttle-to-another-terminal-down-the-hall, etc. A day in the electronic life of a typical Patent or Trademark examiner can be described as a series of "passages" from one terminal to another, one database to another, one user ID after another. For example, the applications-in-process databases are not integrated with their corresponding applications-granted databases -- i.e., PALM with APS and TRAM with X-Search. This means that examiners and outside law firms must search two or more sources to ensure that all bases are covered: at a minimum, a tracking system and a search system and at times paper files, microfilm (for pre-1971 APS text or inactive trademarks before the late 1970's) and commercial databases (for a better view of "prior" and foreign art or simply a more intelligent trademark design code schema as done by Thomson & Thomson or CorSearch).

Trademark examiners specifically charged us with reporting the extent to which they must waste time going from terminal to terminal and database to database. Beyond the chasing around, there is the related matter of logging on and off, which requires a separate ID for each database and, worst of all, maintaining serial numbers for manual entry onto the next system. Obviously, this is not "office automation" in the truest sense of the term. Until these systems "talk" with one another -- or at least allow the export and import of data among themselves -- PTO's information resources will consist of a disconnected collection of systems.

At Trademarks, both examiners and clerical staff regaled us with stories of having to run down the hall, or up or down floors, to get to a TRAM terminal to check an application's status, often while an outside caller is on hold, or to "TRAM the file in or out" as required with each processing step. A "lucky few" -- mostly high-volume clerical processors -- are blessed with TRAM terminals within reach along with dedicated dot-matrix printers. But with a finite number of terminals scattered throughout Trademarks, many are inconvenienced and must plan their workday around "TRAM trips."

At the time examiners and clerical staff described this problem, we were well aware of PTO's plans to begin placing TRAM on PTOnet. But it was evident that most employees were unaware of those plans. The TRAM-to-desktop program, part of the CIO's STAF project is now well underway.[108] Employees in TTAB and other parts of

[108] The Single Terminal Access Facility, or STAF project, is the CIO's effort to enable employees to access all of the automated tools and systems that they require, including legacy systems, through desktop PCs linked to PTOnet. This will eliminate the need for employees to go to other offices to use systems such as PALM, TRAM, X-Search and other systems which have dedicated terminals.

Trademarks now have access to TRAM on PTOnet and the CIO plans to rapidly deploy the system via the network over the remainder of the year.

PTO should consider ways to improve the level of database integrity, patent classifications coding, and trademark design coding. PTO's search systems -- no matter how good they are -- will continue to be impaired by faulty data entry and coding until their underlying problems are addressed. One constant subtext of focus group discussions was the emphasis on misspellings, errors, inconsistencies in nearly all PTO databases and the quality of the Patent Classification System and Trademark design coding. The latter two topics elicited passionate views -- including the claim that Patent Classifications had been fouled up in conjunction with a recent organizational re-assignment -- and that Trademark design coding is incompatible with international usage and inferior to that done by commercial services. The latter allegation revolves around one view that PTO's coders may be so underqualified, badly trained, and under the "PTO production gun" that they are unable to recognize and properly code, for example, a "sand dollar" or "seahorse" when they see it--mistaking the former, for example, as a form of currency.

We were told of several attempts to clean up Trademark data in recent years, which largely failed for the same reasons: inadequate resources, underqualified undertrained coders and the production gun. Problems with Trademark data and the old T-Search System were identified as early as 1989 in a document written by the United States Trademark Association. Many of those critiques remain valid today.

Until an efficient and responsive Help Desk with a concomitant service center organization can meet all users' service needs and requirements, PTO can neither fully support nor evaluate its automated systems and related level of service quality. Customer service organizations in the private industry respond to a plethora of user needs and requirements. Users call service centers for a range of reasons, most overwhelmingly to: 1) learn more about how to use a product or service; or 2) report a problem that needs immediate resolution. In the most efficient customer-oriented organizations, a user need only call one number, from which an automated system or screening personnel hand off the problem to a skilled individual who is able to respond in a comprehensive, timely and responsive way to the problem.

In the usual scenario, a caller who simply wants information gets routed to a Help Desk staffed with individuals able to answer virtually any question that may arise -- or in exceptional cases, to quickly discover how to find an answer. In a second -- and more common scenario -- the caller reports an urgent, often crippling, problem with a product or service. This means, of course, that problem resolution desk staff must have the know-how and tools to solve problems -- including a knack for quick and accurate diagnosis, ready access to people who can respond to the problem, the ability to track the status of any given problem resolution, the authority to escalate a problem when it

does not get fixed in a timely manner and the responsibility to report back to the customer what has happened. An independent, third-party usually evaluates -- on an ongoing basis -- how well the service center performs these tasks.

Many of these fundamental quality customer service building blocks are just beginning to be built. PTO does not now have -- but clearly must establish and adhere to -- effective procedures that guide users on how to contact the Help Desk. At the time of our focus groups, procedure mandated that only a designated liaison in each unit was supposed to call the Help Desk. This mandate was frequently ignored by users who felt that it imposed another layer between themselves and the Help Desk. Wholesale disregard for the procedure undermined the Help Desk's ability to service end-users. While this procedure has since been changed, PTO should try to avoid procedures that impose additional layers between the user and the help that he or she may need.

Until the CIO maintains an accurate inventory of workstations so that its Help Desk representatives can view the history of a given piece of equipment on screen at any point in time, support personnel cannot make proactive decisions regarding maintenance, software upgrades and equipment replacement. Under current procedures, maintenance history is recorded by each unit's liaison. Even this is done only sporadically and, since the logs are kept in the units, valuable maintenance data is not readily available to Help Desk or other CIO employees so that decisions can be made proactively.

The CIO has recently begun a program that uses handheld/bar code technology to enable employees to scan in the ID number of each piece of computer-related equipment in the agency. This program will allow the CIO to identify and locate every piece of PTO equipment, maintain a service record on each one (assuming the inventory is kept up-to-date) and automatically escalate service calls and dispatch vendors. Concurrently, the CIO is: 1) consolidating its hardware/software maintenance contracts so that the dispatched vendor will always be responsible for correcting the problem, regardless of its nature; 2) establishing service-level agreements with other parts of the agency; and 3) redeploying unit liaisons to act as point-of-need contacts rather than as barriers between the user and the Help Desk. The challenge for the CIO will be to provide consistently high levels of service to it clients. To do this, standards for measuring and enforcing pre-established levels of service must be firmly established in the contracts.

The issue of equipment maintenance, much like training, seems to often "fall between the cracks." In the past, it has been unclear who is responsible for maintaining what equipment. To address this problem, the CIO is working to reduce the number of vendors repairing systems. As it phases out the first and second generation workstations, and as new systems come in, they are placing the maintenance under the

Trademarks now have access to TRAM on PTOnet and the CIO plans to rapidly deploy the system via the network over the remainder of the year.

PTO should consider ways to improve the level of database integrity, patent classifications coding, and trademark design coding. PTO's search systems -- no matter how good they are -- will continue to be impaired by faulty data entry and coding until their underlying problems are addressed. One constant subtext of focus group discussions was the emphasis on misspellings, errors, inconsistencies in nearly all PTO databases and the quality of the Patent Classification System and Trademark design coding. The latter two topics elicited passionate views -- including the claim that Patent Classifications had been fouled up in conjunction with a recent organizational re-assignment -- and that Trademark design coding is incompatible with international usage and inferior to that done by commercial services. The latter allegation revolves around one view that PTO's coders may be so underqualified, badly trained, and under the "PTO production gun" that they are unable to recognize and properly code, for example, a "sand dollar" or "seahorse" when they see it--mistaking the former, for example, as a form of currency.

We were told of several attempts to clean up Trademark data in recent years, which largely failed for the same reasons: inadequate resources, underqualified undertrained coders and the production gun. Problems with Trademark data and the old T-Search System were identified as early as 1989 in a document written by the United States Trademark Association. Many of those critiques remain valid today.

Until an efficient and responsive Help Desk with a concomitant service center organization can meet all users' service needs and requirements, PTO can neither fully support nor evaluate its automated systems and related level of service quality. Customer service organizations in the private industry respond to a plethora of user needs and requirements. Users call service centers for a range of reasons, most overwhelmingly to: 1) learn more about how to use a product or service; or 2) report a problem that needs immediate resolution. In the most efficient customer-oriented organizations, a user need only call one number, from which an automated system or screening personnel hand off the problem to a skilled individual who is able to respond in a comprehensive, timely and responsive way to the problem.

In the usual scenario, a caller who simply wants information gets routed to a Help Desk staffed with individuals able to answer virtually any question that may arise -- or in exceptional cases, to quickly discover how to find an answer. In a second -- and more common scenario -- the caller reports an urgent, often crippling, problem with a product or service. This means, of course, that problem resolution desk staff must have the know-how and tools to solve problems -- including a knack for quick and accurate diagnosis, ready access to people who can respond to the problem, the ability to track the status of any given problem resolution, the authority to escalate a problem when it

does not get fixed in a timely manner and the responsibility to report back to the customer what has happened. An independent, third-party usually evaluates -- on an ongoing basis -- how well the service center performs these tasks.

Many of these fundamental quality customer service building blocks are just beginning to be built. PTO does not now have -- but clearly must establish and adhere to -- effective procedures that guide users on how to contact the Help Desk. At the time of our focus groups, procedure mandated that only a designated liaison in each unit was supposed to call the Help Desk. This mandate was frequently ignored by users who felt that it imposed another layer between themselves and the Help Desk. Wholesale disregard for the procedure undermined the Help Desk's ability to service end-users. While this procedure has since been changed, PTO should try to avoid procedures that impose additional layers between the user and the help that he or she may need.

Until the CIO maintains an accurate inventory of workstations so that its Help Desk representatives can view the history of a given piece of equipment on screen at any point in time, support personnel cannot make proactive decisions regarding maintenance, software upgrades and equipment replacement. Under current procedures, maintenance history is recorded by each unit's liaison. Even this is done only sporadically and, since the logs are kept in the units, valuable maintenance data is not readily available to Help Desk or other CIO employees so that decisions can be made proactively.

The CIO has recently begun a program that uses handheld/bar code technology to enable employees to scan in the ID number of each piece of computer-related equipment in the agency. This program will allow the CIO to identify and locate every piece of PTO equipment, maintain a service record on each one (assuming the inventory is kept up-to-date) and automatically escalate service calls and dispatch vendors. Concurrently, the CIO is: 1) consolidating its hardware/software maintenance contracts so that the dispatched vendor will always be responsible for correcting the problem, regardless of its nature; 2) establishing service-level agreements with other parts of the agency; and 3) redeploying unit liaisons to act as point-of-need contacts rather than as barriers between the user and the Help Desk. The challenge for the CIO will be to provide consistently high levels of service to it clients. To do this, standards for measuring and enforcing pre-established levels of service must be firmly established in the contracts.

The issue of equipment maintenance, much like training, seems to often "fall between the cracks." In the past, it has been unclear who is responsible for maintaining what equipment. To address this problem, the CIO is working to reduce the number of vendors repairing systems. As it phases out the first and second generation workstations, and as new systems come in, they are placing the maintenance under the

same service provider. Additionally, a procurement initiative is underway to implement an overall office automation support contract which will roll many office automation services into one service provider. This will include system integration, deployments, upgrades, hardware and software installations. The objective is to reduce the number of technical staff people who interact with the customer for repair, configuration and troubleshooting.

While certainly a worthy objective, the consolidation of vendors will not, by itself, remedy the lack of technical expertise in the technicians that respond to the call. The standard for such expertise must be established, and enforced, through SLAs like the one that SIRA is currently developing in conjunction with the CIO.

The CIO also needs to achieve more discipline and control in coordinating vendor activity or else service to users is not likely to be either timely or effective. Users complained in focus groups that calls to the Service Center often produce a contractor visit only after days (or weeks in extreme cases) of waiting. Frequently, contractors dispatch personnel who lack the skills to address the problem at hand. In such cases, they depart claiming that it is not their responsibility, further lengthening overall repair time.

Our focus group sessions revealed that many employees view the Help Desk as a clearing house designed to funnel *all* computer-related problems to vendors capable of resolving them. It is clear, however, that the Center is not currently equipped -- in neither manpower or skills -- to effectively handle the variety of problems and questions that arise during the average day. This is particularly the case with point-of-need software questions where users encounter obstacles stemming from their lack of understanding and require on the spot assistance to help them bridge their training gap. Because the Service Center is unable to provide this type of on-going support, resources invested in initial training are often squandered because employees cannot effectively use software on their desktops and therefore abandon attempts to apply new techniques that might enhance their work.

PTO needs to routinely evaluate the extent to which all service providers are living up to commitments. There is great truth in the old business adage that one can only enforce what one inspects and PTO has a great need to inspect systems development and service delivery activity with far greater discipline and regularity. As a standard element of any future systems procurement and activity, PTO and its vendors should enter into service level agreements that carefully spell out expectations regarding all elements of performance. These standards should measure performance of both the CIO and of vendors against reasonable standards *established by users.* On-going evaluations should routinely track the extent to which both PTO and its vendors are meeting end-users' service expectations in such areas as:

- Delivering products and services that match user's specific requirements
- Ensuring high quality technical design and support prior to product delivery and installation
- Deploying ample personnel to respond to user service requirements
- Demonstrating expertise on how advanced applications can be applied to PTO's environment
- Assuming appropriate responsibility for all actions that impact PTO
- Providing effective coordination with other vendors working in PTO
- Installing new services in a timely manner
- Completing change orders in a timely manner
- Providing regular status updates on service orders or changes
- Ensuring that proper pre-testing occurs
- Delivering products that function properly from the beginning
- Delivering products and services by the date promised
- Ensuring that introduction of products and services are not disruptive to work
- Ensuring network availability and reliability
- Providing network recovery and rerouting capabilities in cases of outages
- Providing ample detection of outages and automatic restoration of service
- Responding to service problems with skill, speed and professionalism
- Providing status reports to users regarding service requests
- Fixing service-related problems within specified time frames
- Notifying users when their problems are resolved
- Avoiding chronic problems
- Establishing effective escalation procedures for unresolved problems
- Notifying users of maintenance schedules to minimize impact on their work
- Providing timely, easy to understand and accurate billing
- Demonstrating customer orientation in every aspect of service delivery

These standards must be enforced through an ongoing evaluation process, including periodic random sampling of users to determine their satisfaction with the service provided -- a routine practice in the private sector. These results need to be reported monthly and quarterly and either the office of the CIO or an appropriate vendor needs to be held accountable -- then sanctioned or rewarded -- for the results. Escalation procedures need to be established whereby a problem reported by an unhappy end-user gets reviewed immediately and resolved. Such ongoing evaluation and immediate reporting of results need to be a requirement of all future procurements.

Chapter 6: QUANTITATIVE STUDIES OF AUTOMATION

Background

Beginning in May 1995, M&A conducted a series of meetings with PTO employees to discuss their views on PTO's information systems and to learn whether they believed the systems were meeting their needs. These qualitative information-gathering methods (interviews and focus groups) were rich and invaluable, but a quantitative survey was necessary to produce scaleable and projectable results. An early 1996 survey tested the accuracy of critical issues and viewpoints raised through many hours talking with an informed and reasonably representative cross-section of users and systems manager. This chapter presents the results of the quantitative study fielded in early 1996.[109]

Introduction

Since the current study was defined broadly to include "office automation" generally the scope of the survey investigation extended well beyond a more limited focus on TRAM, X-Search and PALM. All groups at PTO were invited to participate and all significant identifiable systems were addressed in the survey in some form or fashion. Because end-users are beginning to see office automation and computer systems as an integrated set of tools accessible through one central source, our survey questionnaire treated systems similarly to provide maximum comparability.

PTO proprietary databases -- TRAM, PALM and X-Search -- were evaluated in much the same way as other software tools that PTO employees use in the daily conduct of work tasks. This approach allowed us to compare these systems with standards established by state-of-the-art COTS software[110] in many cases. Some questions, however, pertained to the special nature of PTO proprietary systems and their effectiveness as databases of information. We learned from focus groups that expectations were ever-increasing as marketplace features and ease-of-use became more commonplace in COTS. Participants frequently made direct reference to what they would like a PTO system to do based on features that they had become accustomed to in COTS software. When PALM, TRAM, X-Search and all other PTO proprietary systems become just "other icons" on users' desktops -- which they access via mouse clicks on familiar and standardized menu items rather than through treks to

[109] Unless otherwise noted, all data in this monograph excludes non-responses, such as "Not Sure" or "Not Applicable."

[110] Non-customized "Commercially-off -the Shelf" Software generally available for a wide array of personal and business-related purposes.

specialized terminals and machinery -- PTO will be close to fulfilling most users expectations of transparency and systems ease of use.

Our survey investigation begins with a look at the computer hardware and software that PTO staff have at their disposal and use. Next, we look at the support that end users are getting—or are not receiving, as is often the case. We then consider users' views of office automation policy and what they would most like to see improved. Finally, the demographics section describes the broad cross-section of PTO staff that responded to our survey.

Hardware Profile

Based both on focus group comments and survey findings, the quality and availability of computer hardware at the PTO is significantly improving. As recently as a year ago, 98% of Patent examiners had "386" or below processors.[111] The recent survey shows that now at least 23% have "486" or better PCs, and this figure is expected to improve in the near future with the large purchase of PCs in late 1996 or early 1997.[112] Among other groups, PC availability and quality are high. Among respondents as a whole, 95% had a PC for their exclusive use; 2% indicated that they share a PC and only 3% indicated that they don't have or use a PC. In the agency as a whole, more than half (55%) of respondents indicated that they have a "486" PC or better.[113]

When survey results are broken out by groups, however, the PC availability situation varies markedly from group to group. Clearly, Trademark respondents had more advanced PCs. About 92% of Trademark staff indicated that they have a "486" PC or better, versus only 38% of Patent staff.[114] Outside of the Patent and Trademark groups, PC availability and quality was even higher: 90% of staff in other offices indicating that they had a "486" PC or better.

Focus group comments suggested that PC distribution was generally on the basis of grade. While survey results validated this observation at the highest grade levels, it did not seem to be consistently the case in the middle grade ranges. In fact,

---

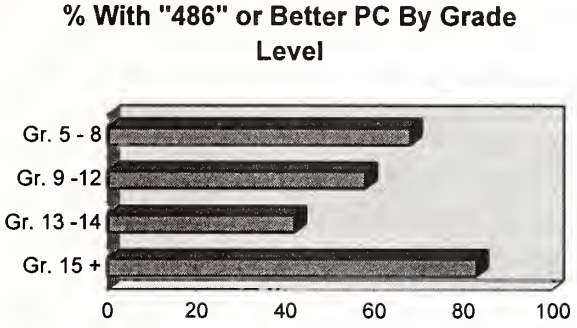
[111] Mathis & Associates, *The Automated Patent System: Is it Meeting Examiner's Needs?*, January 1995.

[112] We would point out that if survey participants who indicated "Not Sure" in response to the question about PC type are included, this group comprises fully 16% of the population.

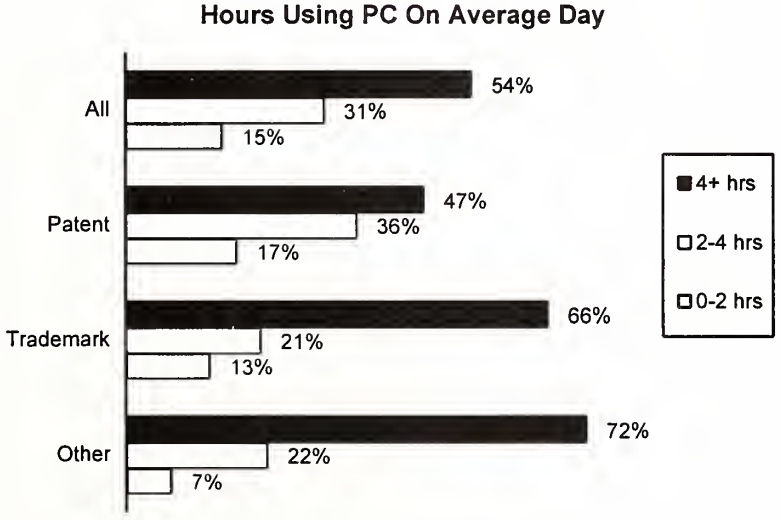
[113] One percent of respondents indicated that they had a Macintosh computer.

[114] The percentage may even be higher for Trademarks because a large proportion (30%) of Trademark respondents could not identify their processor type.

more staff in grades 8-12 indicated that they had "486" or better PCs than did those in grades 13 and 14:



Modems for sending and receiving faxes were not widespread among the examining corps groups. However, many respondents from other offices had an internal modem. More than a third of all respondents indicated they had an internal modem and 16 percent indicated that had an external modem attached to their PC. The Patent and Trademark groups both fell substantially below the average for the sample as a whole for both internal and external modems. More than 60% of respondents from other offices, however, indicated they had an internal modem in their PC.



The survey data dramatically confirmed the central position of PC computers in the lives of PTO staff in the mid-1990s. As the CIO expanded the scope and availability of PTOnet, more and more employees had access to automated tools that would help them in their daily work. More than half of respondents who use a computer (which includes 98% of survey respondents) agency-wide indicated that they spend four or more hours a day using their PC. By group, this percentage is even higher for Trademarks (66%) and other offices (72%), than for Patents (47%). This difference is predictable given the fact that Patent examiners probably spend less time in automated searching of a typical case than Trademark examiners, where completion of each case in 1.1 requires heavy reliance on automated tools. In particular, Trademark examiners are among the most highly dependent on their PCs, 80% of whom indicate four or more hours of PC usage on a typical day. Even within this high usage at Trademarks, most responses were concentrated in the highest range offered "5 hours or more per day," which was selected by 38% of respondents agency-wide.

This heavy reliance on office automation was corroborated by focus group participants--particularly at Trademarks where production goals require examiners to churn out 1.1 cases per hour. Trademark focus group commentators were almost unanimous in their quest for any changes that would bring efficiency gains since even a few minutes gained per case would be multiplied by several cases a day. In Patents, where dependence on automation is less absolute in some examining groups, most seemed to recognize the value of office automation and the challenge of making it better fit their job functions.

The survey data clearly verifies that the PTO has effectively reached its goal of universal connectivity to PTOnet. Among respondents in the agency as a whole who use PCs, 96% indicated that they were connected to PTOnet. This figure was 100% at Trademarks and 95% at Patents. Some administrative and clerical staff at Patents appeared to be the only major groups with significant percentages not yet connected to PTOnet -- 15% of the former and 25% of the latter indicating that they were not connected.

One puzzling aspect of survey results was that a high percentage (22%) of respondents indicated that they were not linked to network printers via PTOnet. A further 6% were not sure. It is not clear whether responses resulted from a lack of knowledge of how to print out over network printers; a lack of use of this channel due to the proliferation of personal printers among many examiners, managers and administrators in Patents; poor or remote setup of the network printers; or a lack of understanding of the question. In any case, all staff who are linked to PTOnet should be able to print out on the network laser printers. This problem appeared to be greatest in Patents, where only 71% of respondents indicated that they could print out over the network. Perhaps since many Patents staff had their own printers, many did not bother

to figure out whether they were linked to printers via PTOnet. In contrast, 87% of staff in Trademarks indicated that they could print over the network.

Continuing on with the issue of printer access, more than two-thirds of respondents agency-wide indicated that their PCs were connected to non-network printers. There is, however, a wide disparity by office: 88% of Patent respondents indicated that they were connected to non-network printers (perhaps explaining a lack of knowledge of or need for network printers), led by examiners, 84% of whom have laser printers connected to their PCs, an additional 10% other types of printers. In contrast, 20% of Trademark respondents and 57% of other office respondents indicated that they had non-network printers attached to their PCs. These non-network printers were heavily used among those that had them. Among Patent examiners who indicated that they have non-network printers, 89% reported their usage of these personal printers as medium to heavy.

Hardware assessment

Users were asked to assess the quality of their hardware--their PCs, printers, and other computer-related equipment--in a variety of aspects. Generally, complaints were strongest concerning procedural and administrative issues rather than the base-level quality of the equipment provided. Groups with poorer quality equipment or without access tended to register complaints more, including those with older technology "386" PCs. All-in-all, the assessment shows that though the PTO is making strides in providing its staff with better quality equipment, issues revolving around access to and maintenance of this equipment have not been completely resolved and continue to cause consternation among some staff.

More than three-quarters of respondents with PCs indicate that their primary PC is adequate, a figure that is somewhat higher among respondents in Trademarks (83%) and other offices (86%) than those in Patents (75%). To a certain extent this probably reflects the continuing prevalence of "386" PCs at Patents, while the outside market has nearly fully moved to Pentium ("586") technology and soon will move to the "686" or Pentium Pro standard as the leading edge. Though "386" technology can still run most standard PC software, this will not be the case for long and it continues to do so only at slow rates compared with what users expect based on use of more advanced technology. Not surprisingly, those with “386” PCs or below were much less likely to rate their PC as adequate. Only 68% of those with “386s” and 57% of those with “286s” rated their PC as adequate; 83% of those with “486s” and 92% of those with Pentiums rated their PCs as adequate[115]. In addition, there was a general high level of satisfaction with PC operability across the agency, with 86% indicating their satisfaction

[115] The fact that the satisfaction level with 486 and Pentium quality is still less ten 100% demonstrates that expectations are high -- and unrealistic -- that it will be impossible to satisfy everyone.

with this measure. Again, there was a difference between Patents (83%) and other agencies (Trademarks 92% and other offices 90%), probably occasioned by the more advanced technologies which are available to these latter groups.

With printers, respondents reported the same high satisfaction with operability and physical condition. Among agency respondents on the whole, satisfaction registered 89%. Satisfaction scores among groups, however, were reversed in this case, with Patents posting higher scores versus Trademarks (92% satisfaction versus 76%), though not much different from other offices. This may be due to the fact that many Patent examiners and other professional staff have their own laser printers. In Patents, 94% of those that had their own printer indicated that it was adequate for their needs and 92% were satisfied with the operability and physical condition of the network and non-network printers that they use. The corresponding figures in Trademarks were 85% and 76%. In addition, a relatively high proportion (29%) of Trademark respondents complained about the accessibility of the printers (both network and non-network) that they use, versus only 5% of Patent respondents. Again, these figures reflect the desktop accessibility of printers for many Patent respondents.

One other set of figures appears to underlie this apparent difference in perception of printer quality between Patent and Trademark staff. A relatively high 33% of Trademark respondents were dissatisfied with the maintenance of the printers (mostly network) that they use. Of Patent respondents, only 13% were dissatisfied with the maintenance of the printers they use (mostly non-network). Trademark examiners were especially likely to criticize printer maintenance; only half pronounced themselves satisfied with printer maintenance, the other half dissatisfied. These views were generally corroborated in focus groups, where we heard that relatively simple procedural issues, such as restocking the printer with paper, caused significant frustration and time lost among staff. In many cases it appeared that there were no clear procedures and responsibilities set for checking and restocking the printers on a regular enough basis and many staff resented having to take care of this themselves (or get around it by sending output to another printer) only after the problem had been discovered and time had been wasted walking to the printer.

Other aspects of equipment, mainly related to procedural issues, also were a problem. Some of these appeared to be problematic agency wide. For example, nearly 50% of respondents in both Patents and Trademarks, and 33% in other offices, complained of the speed with which requested or ordered computer equipment is received. Approximately a third each in Patents and Trademarks complained of access to "other computer equipment" that they needed for their work. While our survey measurement did not allow us to establish just what equipment is needed or desired, there does appear to be a significant pent-up desire for computer technology which is not met.

Computer equipment reinstallation after a move appeared to present a particular problem among Trademark respondents, but not so in other parts of the agency. A high 37% of Trademark respondents (42% of Trademark examiners) expressed dissatisfaction with this aspect of PTO's computer equipment services. We had also heard this comment in focus groups, in particular in relation to the re-establishment of a connection with PTOnet after a move. Survey results indicate that this problem is not so prevalent in other parts of the agency; less than 15% of Patent respondents and only 20% of respondents from other offices expressed their dissatisfaction with computer equipment reinstallation.

Regarding PTOnet, the clear and unsurprising result of the survey was that the primary concern among respondents was its speed of operation. Agency-wide, 45% of respondents indicated their displeasure with PTOnet's speed of operation, with no more than 2% variation among the offices versus the agency average. Respondents who tend to use PCs in more demanding ways, such as examiners, led the critique of this aspect of PTOnet. By contrast, clerical respondents generally did not complain about speed in as high proportions. Network managers are well aware of users speed concerns and have been taking measures to address these problems. We would only add that some users were unable to distinguish between speed problems related to the network servers and speed problems related to aging equipment, such as the older "386" PCs which labor under the graphic-intensive Windows applications.

Outside of the speed issue, PTOnet fared well in its overall evaluation by users. More than 80% of staff across the agency approved of PTOnet's availability (freedom from outages and downtime), the availability of applications on it, and its reliability as a storage medium; just under 80% were content with its ease of use. Whereas focus groups may have led us to believe that outages and downtime would have been considered a serious problem by a high proportion of users, this does not appear to be the case. Given PTO management's substantial focus on PTOnet reliability in recent months, performance improvements are now being felt and appreciated at the user level.

One other measurement relates to management's goal of establishing PTOnet as a central pipeline through which staff across the agency access the computer resources that they use to carry out their work. We asked, "Considering all of the work that you do using computer systems, what percentage of that work is accomplished from your primary desktop PC versus that which is accomplished using a terminal or a PC located somewhere else?" The majority of PTO employees (51%) -- including 56% of Patent examiners -- indicated that they do perform virtually 100% of their computer work at their desktops. Agency-wide another 38% of respondents indicated that they complete between 60% to 80% of their work from the desktop. Clearly, PTO is making headway in eliminating the dislocations and time wasted in searching and possibly

waiting for dedicated terminals located at some site remote from staff members' work stations.

One cautionary note, however, is that figures at Trademarks were unsurprisingly lower, given the need for examiners to access both X-Search and TRAM from remote locations. As a result, only 21% of Trademark respondents indicated that they can do 100% of their computer work from their desktops and only 13% of Trademark examiners. Though most of the rest of Trademark respondents (58%) were in the 60% or 80% response buckets, we heard in focus groups that in the current network environment, lack of access to systems from the desktop is considered unacceptable by many users.

Software profile (Systems and Users)

Considered without regard to office, E-mail, word processing software and PALM are the most widely used systems across the agency. Of course, by office, systems usage varies substantially. In Patents, the top three are E-mail, PALM and Word Perfect; in Trademarks, the top three are TRAM, E-mail, and MS Word. Other offices predominately use commercial off-the-shelf software, particularly the Microsoft Office suite of software (MS Word, Excel, PowerPoint and Access) in addition to E-mail and Word Perfect. Financial software such as Desktop Procurement and FFS are used primarily by administrative and other support offices and touch only one quarter of PTO's staff.

A breakout of usage by office and by job function provides a much clearer picture of usage agency wide. Nearly all Patent examiners use E-mail, PALM, Word Perfect, APS Text and Action Writer (each has 90%+ usage, except for WordPerfect which is 85.7%). Nearly 80% of Patent examiners use PCT. At Trademarks, all examiners (100%) use TRAM, and more than 90% use E-mail, MS Word, X-Search and ID Manual; 80% or more use TMEP and Excel, and 70% use Co-pending. Among other staff within Patents and Trademarks, PALM and TRAM are the most heavily used PTO proprietary systems. These figures are by no means surprising given our understanding of PTO's systems and users, however, it is useful to put numbers next to actual usage to determine which systems (including COTS software) have importance to which groups.

Interestingly, long-standing systems usage does not necessarily translate into more systems expertise. This finding was reiterated again and again in focus groups in relation to PTO proprietary systems and the survey provides numbers to back up these observations. This relationship was particularly the case for PALM, used by 73% of Patent respondents on a daily or weekly basis and by two-thirds of Patent staff for more than four years. Only 28% of Patent respondents, however, considered themselves to be "advanced" to "expert" users. More than half (53%) rated themselves as

"intermediate" and 20% as “beginner's” to “novices”. These figures were better for clerical, administrative and other job categories, among whom nearly half pegged themselves as “advanced” to “expert” on PALM. Only 21% of Patent examiner respondents considered themselves “advanced” to “expert” on PALM. On the whole, however, the figures appear to indicate that PALM cannot be easily figured out simply through extended experiences using it, unlike COTS software being release today with standard menus and commands, “wizards” to guide users through complex operations, and an extensive on-line help dictionary, tutorials and other help files.

Patent examiners appear to be somewhat, but not much more comfortable with the APS search system than they are with PALM. Their expertise, however, should be much greater given their heavy and long-standing usage of the system. More than a third of Patent examiner respondents considered themselves to be “advanced” to “expert” users of APS Text and only 11% as “beginner's” to “novice”. These figures are not all that impressive considering 71% use APS Text on a daily basis and over 60% have been using it for more than 4 years. On APS Image, user expertise is not much better (32% “advanced” or “expert”; 31% “beginner” to “novice”), though for this system a lower comfort level may be more justified based on less frequent usage. (Just over 60% of Patent examiners who are APS Image users use it on a daily basis and 28% have used it for four years or more.

For APS Text, only 37% of long term users considered themselves advanced. The figure was similar for PALM (35%). APS Image long term users are slightly better, with 54% of long term users considering themselves advanced. However, this figure still leaves more than 46% of users with more than 5 years experience on APS Image describing their skill level as intermediate or below.

With respect to overall expertise in core systems, Trademarks is in a much better position with X-Search and a somewhat better position with TRAM. In the survey, 86% of Trademark examiner respondents considered themselves “advanced” to “expert” on X-Search. This figure jibes with the generally positive focus group comments relating to X-Search training. For TRAM, nearly two-thirds of users considered themselves to be “advanced” or “expert” on the system. While this does not fully mesh with focus group commentators -- who indicated that TRAM training was poor and that users' lack of TRAM-related knowledge frequently introduced erroneous records and information that only could be corrected down the line through onerous and time-consuming procedures, if at all -- it must be kept in mind that many TRAM users, particularly examiners, only use TRAM in limited ways. Trademark examiners were among the least likely of significant user groups to consider themselves “advanced” to “expert” users, with less than two-thirds indicating such a level of expertise despite the fact that 100% of examiners use TRAM on a daily basis and 65% have been using it for more than four years. Clearly, there is substantial room for improvement and perhaps

significant benefits to be derived in the form of more efficient use and better database integrity.

Comparing length of systems use for X-Search and TRAM users, we find the expected relationship between length of use and expertise. Most—80%--of long term X-Search/T-Search users consider themselves experts on X-Search. Nearly three quarters (73%) of long-term TRAM users consider themselves advanced users.

Some other widely-used PTO specific software exhibit this deficit between usage and expertise. Action Writer and PCT are used by 91% and 79% of Patent examiners and for both systems around 60% of users have been using them for more than two years. Only 48% and 21% of Patent examiners who are users, however, consider themselves to be "advanced" to "expert" users. In Trademarks, ID Manual and TMEP are used by 97% and 82% of Trademark examiners respectively, but only 33% and 29% of these users describe themselves as "advanced" to "expert" in using these tools. On the other hand, of the 70% of Trademark examiners who indicated they use Co-pending, more than half (61%) described themselves as advanced to expert.

While lack of expertise cannot always be considered a failure of PTO training, efforts must be geared to the level of usage and complexity of the various systems, complaints about software and systems being thrown onto PTOnet without adequate explanation or training were frequent in focus groups. Small inefficiencies in usage can add up to large time lost and frustration for the agency as a whole for frequently accessed systems. Nearly all systems will require some explanation or training and it appears that "systems" types--those in information technology positions who are very knowledgeable about computers in general--often overestimate users' ability to learn how to use software tools, the amount of time or patience that they have available to do so, or the self-explanatory nature of the software and its help screens and documentation (if they exist). Many users--for whatever reason--fail to achieve an optimal level of usage, and mistakes get repeated over and over, and elaborate "go-arounds" and "by-passes" translate into lower quality, more time-consuming and less reliable work.

Survey statistics concerning expertise on COTS software available to the PTO community also indicate a substantial training opportunity to raise user competence levels on widely used systems. Even on relatively standard word processing applications, only a limited proportion of users pegged themselves as "advanced" to "expert" users. For MS Word users, this proportion was just a third agency-wide and for Word Perfect, it was 44%. On the spreadsheet software Excel, 26% called themselves "advanced" to "expert". Given widespread and frequent usage of these popular

software applications, PTO could clearly benefit from increasing users' efficiency and the depth of knowledge of system features.[116]

The training questions indicate heavy emphasis at PTO on training examiners on the search systems that form the bedrock of information tools that they use to do their intellectual work. In Patents, 98% of examiner respondents indicated that they had been trained on APS Text. More than three-quarters of Patent examiners who used APS Image indicated that they had been trained on APS Image. In Trademarks, 99% of examiners indicated that they had received training on X-Search. APS Image training at Patents was generally carried out at the Patent Academy; X-Search training at Trademarks occurred through "other PTO" channels, reflecting the fact that X-Search training is organized at the examining group level. For APS Image, slightly more than a third of Patent examiner users indicated that their training was carried out at the Patent Academy. Nearly 60% indicated that they received training through unspecified "other PTO" channels.

Most search system users reported receiving at least initial/beginner's level training. Advanced training on these systems was similar across offices. Among Trademark examiners who received X-Search training, more than one third indicated that they had received "advanced/refresher" training on the system. This proportion is much higher than advanced/refresher training received by Patent examiners on the APS Text and Image systems and by other users of various proprietary systems and is reflective of the relative success of the X-Search training program. Less than one quarter of Patent examiners who had received training indicated "advanced/refresher" level training and less than 15% of those trained on APS Image reported this level of training.

However, one aspect of X-Search training that did come under criticism was the timing of training. Some users felt that it occurred too early. This was reflected in survey data where nearly 50% of Trademark examiners who had been trained on X-Search said that the training began before they started to use the system for their office work. The respective figures for Patent examiners trained on APS Image and APS Text are 39% and 31%. Over a third of APS Text users indicated that their initial training began after they had become users and 22% of APS Image users said the same thing. Only 11% of Trademark examiners said that training on X-Search occurred after they began to use the system for their work.

While a clear effort is made both at the Office of Patents and the Office of Trademarks to train all targeted systems users--examiners--on the search systems, the

---

[116] Training and skill levels vary widely among different organizations. However, a preferred model in service industries that are highly automated places more emphasis on training and skills development, although this is not always the case.

same situation does not pertain to the tracking systems. At Patents, nearly two-thirds of PALM users indicated that they have not been trained on the system. At Trademarks, 41% of TRAM users have not been trained at all. This situation is alarming, particularly given the widespread and frequent usage of these two systems within their respective offices, their archaic nature that does not lend itself to a quick self-teach, and the frequent concerns that we heard in focus groups about ways in which these systems are falling apart, many of them tied to poor user habits and understanding of how the system does--or should--work. At Patents, examiners and other professionals appear to receive low priority in terms of PALM training, with approximately 30% having received some training on PALM. Clericals, administrative staff and managers, and particularly SPEs were more likely to have received training. In Trademarks, the proportion of examiners who received training on TRAM was about the same as the average of other groups.

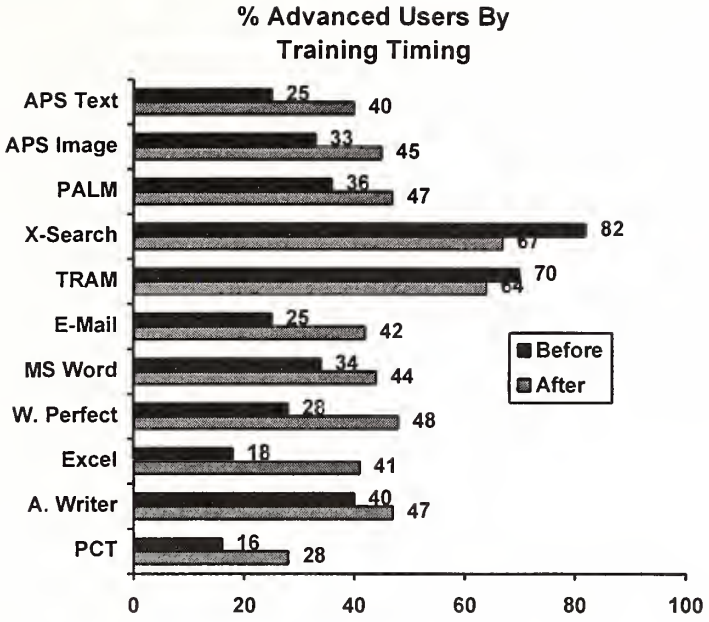
More than half of examiners at Patents who had been trained on PALM received training at the Patent Academy whereas other staff in that office tended to be trained through unspecified "other PTO" channels. At Trademarks, almost all of those trained on TRAM indicated that they had received training through "other PTO" channels. Again, for both PALM and TRAM, training was predominately at the "beginner" level. At Trademarks, nearly a third had received advanced training, particularly among clerical and administrative staff who generally appear to be high volume users. Training timing for both systems appeared to occur relatively early, either before or around the same time as the trainee was beginning to actually use the system.

For COTS software in use throughout the PTO, training appeared to be high among users who used the systems most heavily, but at a relatively early skill level. For example, nearly 70% of Trademark users indicated that they had been trained on MS Word, but only 31% of those trained were trained at an advanced level. In Trademarks, only 32% of all users had received training on Excel, but only slightly more than a third of those received advanced training. Patent staff use Word Perfect in higher proportions than the other groups and nearly 50% indicated that they had been trained, the plurality at the Patent Academy. Less than 20% of those trained, however, indicated any advanced level training.

Across a variety of widely used systems at the PTO, too early training appeared to correlate negatively with an advanced level of expertise, indicating, perhaps, that to a large extent knowledge gained without an opportunity of practical implementation is not retained. The following chart shows this relationship, which pertained to most widely used systems at the PTO[117]:

---

[117] Note, the systems listed represent all those systems for which more than 65 persons responded to the "training timing" question, the fourth part of question 16.



Though many other factors may account for this pattern, there does seem to be some relationship between training timing and eventual level of expertise reached on that system. Note that the two exceptions to the general pattern are X-Search and TRAM. Ironically, in focus groups we often heard the complaint with X-Search that training came too early. Survey results showed that a higher proportion of those that said they were trained early considered themselves to be experts on the X-Search system. Though survey statistics do not tell us why these two systems did not follow the general pattern, at least for X-Search, training received relatively high praise in focus groups, suggesting perhaps that it may have been unusually effective, whenever it occurred. In addition, both X-Search and TRAM were unusual because of the relatively high proportion of users who said they were advanced or expert users.

Software Assessment

The software applications assessment involved eight principle measurements for each of the 19 systems under consideration as gleaned from problems and concerns brought out in focus groups. These critical measures are as follows:

- Availability for your use
- Speed of response to your commands
- Overall ease of use (user friendliness)
- Reliability (freedom from downtime, problematic operation)

- Availability of training
- Overall quality of training
- Ability to work with or exchange data with other applications
- Extent to which the system meets your overall work needs

As explained above, PTO proprietary systems received no special treatment in this portion of the survey, but rather are treated as tools--just like any other--which users access to get their work done. In essence, this section focused on the systems aspects of the tools under consideration rather than any proprietary information contained within or accessed via these tools.

In addition to providing us specific information about individual systems relative to their counterparts, this approach also allowed us to throw into comparative light the aspects of systems performance with which users appeared to be most concerned. We start with this overall view and then move on to more specific detail about individual systems.

At the high end of the satisfaction scale, the aspect which the greatest proportion of respondents appeared to be satisfied with was the "availability" of the systems under consideration. The "availability for your use" measure received an average 89% satisfaction score across systems. The systems with which respondents were most concerned about availability were APS Image and TRAM, two systems which must still be accessed via dedicated terminals. One-third and one quarter of respondents to this question, respectively, indicated dissatisfaction with their availability.

Moving down the satisfaction scale, we found several measurements bunched in the 75% to 78% satisfaction range as an average across all systems measured. These are reliability (average score 78%), speed of response (75%), and ease of use (75%).

PTO proprietary systems measured poorly on the reliability measurement, significantly below COTS software which were rated similarly since most of them are accessed via the same source--PTOnet--and many are produced in a consistent fashion by the same company--Microsoft. For reliability, X-Search, the most Windows-like and user friendly of PTO's proprietary systems, received the best rating among PTO software at 72% satisfaction--though still substantially below the COTS average of above 90%. Patent systems--APS Image, PALM and APS Text--were widely panned by their assessors on the reliability issue. More than half of APS Image assessors rated it as poor on reliability. Around 40% each for PALM and APS Text gave the systems a less than satisfactory rating for reliability. TRAM was a degree higher on the reliability aspect, with 68% satisfaction, however, this level is still problematic; a third of respondents were "not very" or "not at all" satisfied with TRAM's reliability. In general, these non-standard PTO proprietary systems, accessed through dedicated, but

interdependent and fallible lines, do not achieve the consistency and reliability that many users now expect.

On the "speed of response" scale, the search systems received the lowest scores among major PTO systems. For APS Image, 62% of assessors rated the system less than satisfactory. For APS Text, the figure was 40% and for X-Search 34%. This is natural since these systems are the engines for searching through thousands--if not million--of records, a time-consuming process even under the best of circumstances. For APS, the percentage dissatisfied with the speed of response of the system has not improved and may have gotten worse versus the 1994 APS Report.[118] Though changes over time in user expectations may play some role in observed differences, this problem clearly has not been resolved to the satisfaction of those who use the systems. PALM and TRAM fall in a middle range on speed of response compared with other systems assessed, with 78% and 85% satisfaction, respectively, and COTS word processing and E-mail applications accessed through PTOnet fall in the upper range.

On ease of use, again PTO systems fare poorly when compared with standardized COTS applications. X-Search, however, does achieve some measure of respectability for its Windows interface. Approximately 80% were satisfied with X-Search's ease of use. Moving down the line, APS Text, TRAM, APS Image and PALM fall in the 61% to 73% satisfaction range on ease of use. Standardized COTS software generally fall in the 85%+ range for user satisfaction, with several in the 90%+ range. Three less widely used government and PTO proprietary systems fall in the lowest range, CRDA (60%), FFS (56%) and PCT (43%) satisfaction for ease of use.

These results clearly corroborated complaints heard in focus groups concerning the ease of use of various PTO systems. It is important to stress, however, that most PTO systems were originally developed in a much different, less graphically intense software environment that was standard at the time. End user discomfort reflects, in large part, the rapid evolution of technology. PTO management has clearly recognized the need to move towards more current day standards concerning ease of use. However, the pace of change continues to be strained and inhibited by funding and procurement award requirements.

After this group of measurements in the mid-70's average satisfaction range, we drop precipitously to two training measurements: "overall quality of training", which averaged 68% satisfaction, and "availability of training", which averaged 60%

---

[118] The 1994 APS study conducted by Mathis broke out this measurement in much finer detail, making direct comparison impossible. The best comparison, perhaps, would be to contrast satisfaction figures above with 1994 figures for the "response time to execute a search and go to the first screen" for a "text search through the desktop APS Text" (71%) or for "image retrieval through an APS Image workstation" (40%).

satisfaction. Surprisingly, no major system fares particularly well on training measurements. Even X-Search, for which training was widely acknowledged to be adequate and thorough in focus groups, 28% of respondents (nearly all of them Trademark examiners) were dissatisfied with the availability of training; approximately the same proportion were dissatisfied with training quality. For the "availability of training" score, X-Search was the best major PTO system assessed, but it fell in the middle range for quality of training. In fact, both APS Text and Image scored higher than X-Search on satisfaction with training quality, at just more than three-quarters of respondents indicating satisfaction.

The tracking systems were near the bottom of the rankings for both availability and quality of training. Among major PTO systems, PALM received the lowest satisfaction score for "availability of training."[119] Only 34% were satisfied with this aspect of the PALM system; nearly two-thirds of respondents were dissatisfied. TRAM comes in at a comparatively respectable 49% satisfaction on this measurement. In reality, both measurements are dreadfully low, reflect exactly the sentiments expressed in focus groups and represent clear problems to be remedied for the two systems. Satisfaction for "quality of training" hovers at around 50% for both systems, suggesting that not only should more training venues should be available but that the actual conduct of training classes must be upgraded and more tailored to the needs of trainees.

For many other software assessment measurement items, COTS software does not fare much, if any, better, than PTO proprietary systems in terms of respondents satisfaction with the availability of training or the quality of training offered. There appears to be a pent-up demand for more and better training on COTS software, particularly on some of the more challenging applications such as MS Excel, MS Access and MS PowerPoint. Satisfaction with availability of training for these three systems was 62% to 64%; more than a third of respondents were dissatisfied with training availability. These systems were again bunched up in terms of respondents' satisfaction with the quality of training on these systems, which was in the 70% area for each of the three. Respondents' satisfaction with availability and quality of training was generally best for word processing systems, which present less of a learning challenge than other COTS software at the level at which most employees use word processors. Satisfaction with availability of training was above 70% for each of these systems and satisfaction with quality of training was nearly 80%. Like most other systems, there is some potential pent-up demand for training, however, this demand is not nearly as widespread as for other COTS systems.

At the very bottom of respondents' measurement scale was their assessment of the interoperability of the software systems. The average rating was 59% with the back

[119] Major PTO systems, in this context, include PALM, TRAM, X-Search, APS Text and APS Image.

end led by all of PTO's systems. Of course, the Microsoft Office suite of applications (Word, Access, PowerPoint, and Excel) were tops in terms of the interoperability that could be achieved among them, all measuring at 84% or above in satisfaction terms. TRAM, APS Text, APS Image, X-Search and PALM all fell in the 32% to 44% satisfaction range.

Based on focus group comments, this dissatisfaction with interoperability was not a trivial concern. Driven by the greater interoperability of COTS software that PTO staff have become accustomed to, they now see potential opportunities to greatly reduce the amount of work they are sometimes call upon to do to re-key and reformat data and information contained in PTO proprietary information systems. Another, somewhat more subtle undercurrent that ran through focus groups was that in the current environment of easy access to information, end-users viewed some management measures to make data harder to download or otherwise use as excessive. While management and user concerns are both legitimate, there will be a need to flesh out and reformulate security policies in detail before successor systems are created for major PTO proprietary systems. These policies relate not only to how easily and in what format PTO staff can download data that they can clearly see on their computer screens into standard word-processing, database, spreadsheet and other software, but also the extent to which data in systems which are related, e.g., X-Search and TRAM can be directly linked so that updates in one system automatically create corresponding changes in other related applications. In addition, there may be other potential links among systems that may make usage more transparent and effective (For example, a user seeing the current location of a particular case file could click on the name of the file holder in order to send an E-mail).

An overall assessment of office automation systems which throws together COTS and PTO proprietary software is somewhat unfair, since PTO's special systems contain critical information and are called upon to fulfill many more roles than COTS software. An assessment of the extent to which various software systems "meet respondents overall needs" indicated a substantial undercurrent of disaffection for all PTO proprietary systems. Major PTO systems are all bunched in a narrow 63% to 70% satisfaction range on these measurements. These figures indicate that just under a third to just over a third of all users of these systems are not satisfied at the most basic level in terms of their performance in meeting their overall work needs. PTO management has clearly recognized that major changes are desired and needed. What form these changes will take (which will vary from system to system) and when these changes will be brought to fruition are the central themes of current PTO management discussions. The outcome of their discussions will, in turn, drive the final tasking of the work to me performed under the future SDM contract award.

PTO Systems Assessment

PTO proprietary systems were assessed based on measures that make them unique among the office automation tools at the disposal of a typical PTO staff member. The measurements used are as follows:

- Accessibility of the terminals from which you access the systems
- Presence of tools that ensure accurate entries and operations
- Degree to which the system is customized to your work
- Extent to which database records go back far enough in time
- Extent to which information in the database is sufficiently up-to-date
- Database's inclusion of all classes of records that are relevant to your needs
- Database's freedom from data entry errors
- Database's freedom from inaccurately coded or classified records
- Databases freedom from missing records or missing elements in a record

Database currency was the issue that generated the least dissatisfaction from respondents. On average, PTO systems registered 81% satisfaction on this measure. With the exception of Copending, which only received an 51% satisfaction score for "currency", the major PTO systems on the bottom edge of this measurement area were TRAM and X-Search. Since data for both of these systems come from the same source, it is not surprising that they are scored similarly, with approximately three-quarters of users of each system registering satisfaction. Among Trademark examiners alone, the users for whom database currency is most important, satisfaction ratings for currency of both TRAM and X-Search ranged between 66% and 71%, respectively.[120] In contrast to Trademark systems, Patent systems measure high on currency, with satisfaction for APS Text, APS Image and PALM registering near or above 90%.

The average measurement for database inclusiveness was 79% and major PTO systems were rated similarly. Scores for TRAM, APS Image, X-Search, PALM and APS Text fell in the 77% to 84% range. Ratings from examiners for the major search systems did not vary significantly from these averages. Whereas focus groups revealed various classes of data that could or maybe should be included in the search databases, it appears that these concerns may only apply to certain select groups or that the vast majority of examiners may have found ways to overcome these deficiencies through alternative search channels--or through not searching these records. In fact, in focus groups Trademark examiners expressed their frustration with records that should not, in their view, be included in the database or at least in the default search -- "dead marks". These marks are particularly relevant to external users

[120] The relatively low rating for X-Search may be related to the delay examiners experience in viewing text and image simultaneously. This problem was widely reported in our Trademark focus groups.

of X-Search, but Trademark examiners found the necessity of skipping over these records, after they are called up via a query, to be a nuisance.

Satisfaction with Historicity, which measures the availability and accessibility of older files in the database applications, was on average 77%. This score varied significantly across different PTO database systems. X-Search and TRAM measured in the very high 90% satisfaction range, while APS Text measured only 49% satisfaction, probably due to the absence of pre-1971 text records, an issue that existed at the time of the 1994 APS Study and persists today. Both PALM and APS Image measured in the generally acceptable 80% satisfaction range for the availability of historical data.

On average, three-quarters of respondents registered their satisfaction with the "accessibility" aspect of PTO's systems. This satisfaction level is highest with APS Text (91%), which is available over PTOnet, and lowest for TRAM, X-Search and APS Image (among widely used PTO proprietary systems), for which dissatisfaction was in the 34% to 37% range. All of these latter systems require PTO staff to leave their desktops to locate a dedicated terminal. Moreover, in Trademarks, the rapid turnover of cases and the need to frequently respond to the high volume of outside callers exacerbates staff frustration with terminal accessibility. For PALM, satisfaction was somewhat higher (74%) though still not stellar despite the fact that users generally also have to leave their desks to get to this system. The frequency of the need for users to access PALM is lower than that for TRAM, which probably explains the somewhat lower level of frustration.

"Coding/classification accuracy", "missing records" and "data entry errors" were roughly equal in terms of respondent satisfaction, ranking 75%, 74% and 71% respectively. Unsurprisingly, from focus group information, the major Trademark systems, X-Search and TRAM, scored lowest among widely used PTO systems on these measurements. In fact, these appear, in general, to be **the** critical problems that users have with X-Search and TRAM. In fact, among Trademark examiners, the critical users of X-Search, satisfaction with data entry accuracy, coding classification accuracy and freedom from missing records is around 40%. For TRAM, the satisfaction ratings relating to database accuracy were much higher, ranging between fifty-three percent and two-thirds of Trademark examiners for these three measurements; for other Trademark staff, satisfaction is even higher. These statistics clearly show that the errors are most recognizable to examiners as they use X-Search, rather than in their less intensive use of TRAM.

These data entry, coding/classification and missing records errors are discussed in detail in chapters of this report about X-Search and TRAM. The survey statistics, however, establish these as clear areas of concern in a mission critical aspect of PTO's operations. Database integrity satisfaction for Patent systems averages at the 83%

mark, indicating a need for greater agency focus on this important aspect of management.

On average, PTO systems earned a 70% satisfaction level with regards to the "degree of customization" of the databases. Excluding CRDA, which had a low 48% satisfaction rating, this figure is lowest for APS Text, at only 63%, which reflects the inability of the preset search strategies of APS Text to satisfy the diverse needs of Patent examiners.[121] APS Image and PALM receive a similarly low score.

On the very lower rung of satisfaction with PTO proprietary systems is the "presence of data editing tools." The average rating was 58%; all of the major systems fell between 51% and 60%. Focus groups clearly established that no major PTO system is user friendly in the sense of allowing someone to easily change or edit entries that have been made or commands that have been entered. On the data entry side, this deficiency was pegged by some focus group commentators as a major source of data integrity problems. It also leads to significant delays and movements of files in order to correct erroneous entries.

Support Assessment

Ratings of the effectiveness of the support received from a variety of potential support sources revealed some surprises. Whereas, as expected, "knowledgeable colleagues" were considered the best source of support, at 89% satisfaction agency-wide, second most highly rated were "outside help hotlines", with 77% satisfaction, followed by "personnel in SIR" (75%), the Help Desk (73%), "personnel in the CIO" (68%), and on-line help (60%). We would point out that there was wide variance in the number of people who responded to this set of questions; for example, only 21% of survey takers rated "outside help lines," probably because few people have access to them, while 89% rated "knowledgeable colleagues."

The number of survey takers responding to Help Desk questions was high. This was not surprising given that some of the most popular gripes among focus group respondents related to Help Desk, CIO or SIR support, or lack thereof. The Help Desk and the CIO receive much lower ratings among Trademark examiners than their rating for the survey sample as a whole. To some extent, their automation needs are greater--or at minimum more intensive--and survey statistics as well as focus group comments revealed that some Trademark staff feel that their concerns are sometimes treated as an afterthought within the agency dominated by the huge Patent Office.

---

[121] CRDA is scheduled to be replaced by the more up-to-date Revenue Accounting and Management system (RAM) in October of 1996.

Specific questioning concerning experiences with the Help Desk revealed that nearly 71% of agency staff had called or had initiated a call to the Help Desk in the three months before the survey administration. These figures were relatively consistent across all major groups. The majority, 51% of the sample as a whole, called in 2 to 4 separate incidents whereas an additional 14% called in 5 or more incidents. Therefore, nearly two-thirds of respondents had multiple occasions to contact the Help Desk in the three months preceding the survey. A very rough projection of survey statistics would indicate somewhere in the neighborhood of 1,800 separate incidents over three months from survey respondents and 9,000 incidents from the agency as a whole.[122] This is a substantial level of usage and one that indicates the critical role of support and office automation for the agency as a whole.

The source of problems called in spanned the gamut. The plurality (32%) indicated that the source of their call was an equipment problem. However, a quarter each called in either a network problem or a combination problem. Software problems accounted for only 16% of calls. Since we heard in focus groups that the Help Desk was not generally considered a good means of getting a quick and effective response to an applications problems, perhaps PTO staff avoided calling the Help Desk altogether for this source of problem. Focus groups established that major and minor software problems were a constant irritant at the agency and if users addressed these problems through the Help Desk we would expect a much higher volume of calls.

A high proportion of Help Desk users called multiple times for an individual problem; 41% indicated that they had called two to four times and a further five percent reported 5 or more calls for their last incident before the survey administration. These figures undoubtedly contributed heavily to the poor assessment of the Help Desk's "ability to resolve the problem the first time" (38% dissatisfaction), their "speed of completely resolving the problem" (35%), and their "speed of initial response to the problem" (32%). Help Desk staff were not much more highly rated on technical knowledge (28% dissatisfaction) and overall effectiveness of the Help Desk response (27% dissatisfaction). The only measurement on which the Help Desk received consistently high ratings was courtesy of their staff (90% satisfaction). In general, Trademark staff were somewhat more dissatisfied with the Help Desk than was the rest of the agency.

---

[122] 270 survey respondents reported 1 incident (270 incidents); 394 reported 2 to 4 incidents (394 X 3 incidents each, roughly 1000 incidents); 109 reported 5 or more incidents (109 X 5 incidents or approximately 550 incidents). 270 + 1000 + 550 = 1820; our 1112 respondents are approximately one-fifth of the agency. 1820 x 5 is roughly 9,000 incidents.

Office Automation Policy Assessment

The office automation policy assessment revealed significant dissatisfaction with the role of end-users in influencing office automation policies and changes. In addition, intra-office communications of major policy decisions and changes appeared to be poor. Trademark respondents appeared to be somewhat more disaffected with their voice in influencing office automation policy and in particular Trademark examiners. Patent examiners were also somewhat more likely than other employee types within Patents to express disaffection. Perhaps because of the more prominent role in the PTO as a whole of examiners, expectations were higher than that of many other staff in terms of their ability to influence policy.

Agency-wide, only 46% of respondents said that they were satisfied with the information that they receive concerning major decisions and changes that affect the information systems and software tools that they use. In focus groups we consistently heard that communications of major events taking place concerning office automation policy was poor. Staff indicated that new applications would appear on PTOnet without their knowledge of what the new application was for, who should use it or where to receive training (if any was offered). The survey confirms that communication of automation decisions and changes is a major problem that touches more than half of PTO's staff at all levels.

More than two-thirds of Trademark staff expressed dissatisfaction on this same measure. Within Trademarks, 79% of examiners were dissatisfied with the information they receive concerning office automation policy decisions. This is a stunning figure and evidence of a severe problem among these staff who form the core professional group of the Trademarks office. We have repeatedly stressed the importance of communications throughout this report and highlighted in particular problems in communicating systems specifications between Trademarks and the CIO. Given the intensive role of office automation in Trademarks, more so than any other part of the agency, the PTO has to ensure that these front-line professionals learn about prospective changes to the tools they use before they happen and in time for their own feedback to be incorporated into the planning or design of the change.

Behind these very poor numbers concerning communications is the fact that most staff at all levels only hear of major decisions and changes concerning office automation through the grapevine. Approximately two-thirds of staff across the agency indicate that they hear of major decisions and changes to office automation policy through colleagues or word of mouth. The second most accessed source for hearing about changes to office automation policy is through newsletters issued throughout the agency, used by a third of respondents, followed closely by the network administrator (29%) and the respondent's immediate supervisor (29%). In the Trademarks Office, communications flow somewhat more through network administrators (43%) compared

with the agency as a whole and somewhat less through the newsletter (21%). In Trademarks, 18% of respondents indicated that the Office of Trademark Program Control was an additional source of information on changes and decisions concerning office automation policy. The Help Desk and training courses were sources of information for less than 10% of survey respondents.

Overall satisfaction with the voice that individual employees have in office automation policy decisions was again extremely low. Less than one-third of survey respondents as a whole said that they were satisfied with the voice they have in influencing office automation policy changes. Only a quarter of examiners in Patents and Trademarks said the same. Clearly, activity to elicit end-user participation in the change process have not yet led to widespread feelings that office automation technology movements are faithfully reflecting the input of end-users.

On the more positive side, survey respondents across the board affirmed the positive role of office automation in terms of their ability to do their jobs effectively. Fully 93% of survey respondents indicated that office automation has had a positive impact on their ability to do their jobs. This figure was consistently high across the board in all offices. These figures serve as an affirmation of an aggressive policy to continue to integrate various office automation tools into the conduct of PTO's daily work. Unlike a few isolated commentators we heard in focus groups who gave the impression that computer and computer problems were a nuisance and a time-waster, the vast majority of staff recognize improvements that have occurred and that office automation represents a major opportunity, despite the problems and irritations they encounter.

Desired Enhancements

The major enhancement desired by most respondents to the survey revolved around PTOnet. The most sought after enhancement was APS Image at staff desktops, desired by more than two-thirds of staff as a whole and 78% of Patent examiners. In Trademarks, 86% of examiners indicated that placing X-Search on the desktop would have a significant positive influence on their ability to do their work effectively.

Across all agencies and job functions, around two-thirds of respondents indicated that increasing the speed of operation of PTOnet would have a significant positive impact on their day-to-day productivity. Home access to PTO systems and placing PALM and/or TRAM on the desktop (depending on which one was most relevant to the respondent) registered next in terms of respondents' assessment of their potential positive impact on day-to-day productivity, registering 60% and 56% interest respectively. Different groups viewed these potential enhancements somewhat differently; 66% of Trademark staff and 80% of Trademark examiners were interested in having TRAM on PTOnet, indicative of the constant churning of multiple cases a day,

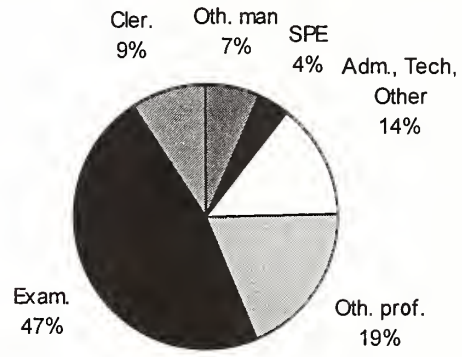
whereas only 56% of Patent staff desired PALM on PTOnet, 54% of Patent examiners. Trademark staff as a whole and Trademark examiners were also more interested in home access to PTO systems.

More than 50% of staff saw the need for increasing advanced training course offerings and improving the quality of training courses. A similar percentage saw the potential advantages of having a computer resource person available in each work unit.

Demographics

The survey sample as a whole was comprised of 47% examiners; 19% other professionals; 14% administrative, technical and other staff; 9% clericals; and 10% managers, including SPEs. These figures represent a wide diversity within the sample that roughly reflect the composition of the agency as a whole, which is 55% "professional", 13% "administrative", 17% "technical", 15% "clerical" and less than 1% "other".

Survey Respondent Job Functions

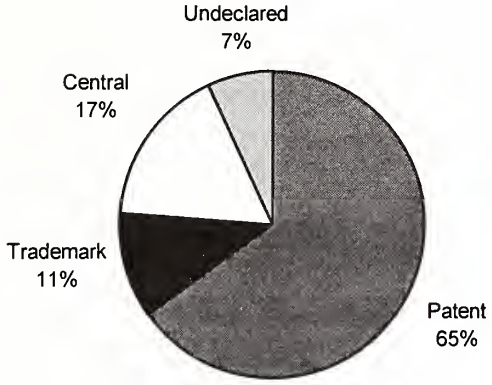


The distribution of survey responses by office shows that the survey sample was 65% Patents, 11% Trademarks, 17% other offices and 7% undeclared. This compares closely with the actual PTO office distribution of 72% Patent employees, 9% Trademarks, and 19% other offices.[123] A slight emphasis towards Trademark respondents to help ensure sufficient Trademark numbers for sophisticated analysis but not so much as to skew results reported for the sample as a whole was intended and

[123] Though Patent figures are somewhat below their representation within the agency, if the undeclared respondents are assumed to reflect the composition of other respondents, we could approximate that actual Patent representation in the sample was 70%, very close to their actual weight in the agency as a whole.

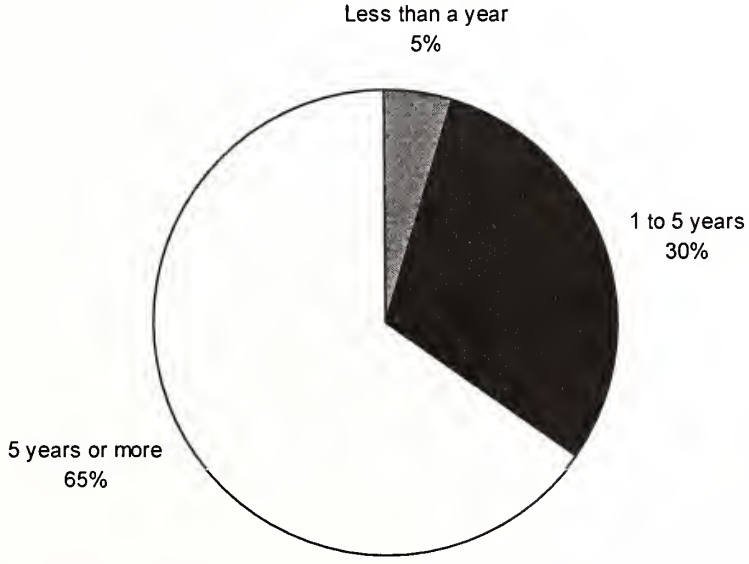
less than we would have liked due to a low mail-in response rate from the agency as a whole.

Survey Sample by Office



Almost two thirds of workers had been with the agency for 5 years or more. Nearly three-quarters had been federal employees for 5 years or more. The Trademark respondents had somewhat less tenure as either PTO or federal employees than the sample average. The staff with the least tenure tended to be clerical workers whereas a large majority of managers had more than 5 years tenure as PTO employees and as government workers.

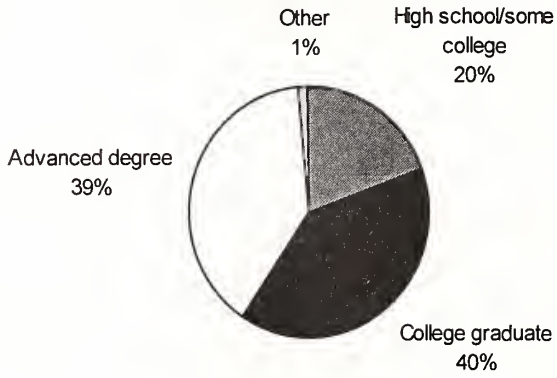
Job Tenure at PTO



The biggest proportion of survey respondents were in the 13 to 14 grade pay range, reflecting the fact that examiners were the largest portion of the sample. About 15% of respondents were grade 15 or above; the same proportion fell in the low 5-8 grade range. Nearly all respondents (96%) work regular business hours; however, a significant proportion also put in time on early weekday mornings (28%), on weekends (30%) or on weekday evenings (18%).

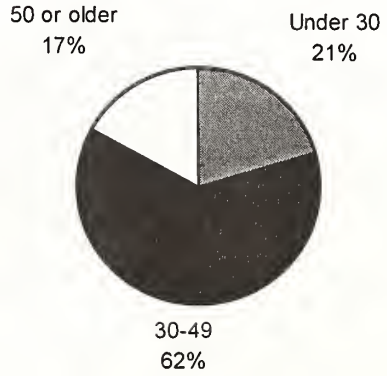
Almost four fifths of respondents had a college or advanced degree. Of course, examiners and other professional staff had higher proportions with advanced degrees. Nearly all Trademark examiners indicated they had advanced degrees (97%) since the overwhelming majority are lawyers (3% of Trademark examiners marked the "other" category). Among Patent examiners, 41% had advanced degrees, 56% bachelor's degrees.

Educational Attainment



Over 60% of staff were in the 30-49 year old age range. Trademarks leaned substantially younger than the sample average. Nearly 80% of Trademark staff were in the 30-49 age range, only 7% 50 years old or older. For Patents, 16% of respondents were 50 years old or older.

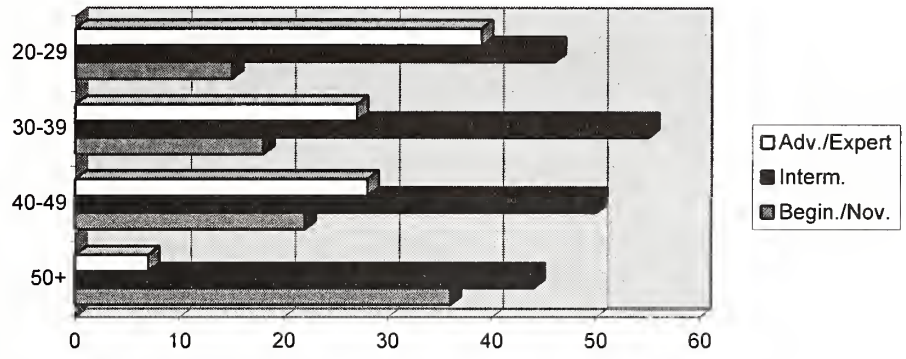
Age of Respondents



Computer expertise was distributed fairly evenly across agencies and groups, with the exception of clerical workers, who tended to fall in the "beginner" to "novice" range. For most other groups, about half of respondents indicated that their level of computer expertise was "intermediate", around a quarter as either "beginner to novice" or "advanced to expert".

The strongest correlation of demographic characteristics with computer expertise was age of respondent. Staff members in their 50's or older were much more likely than the sample as a whole to rate their computer skills as beginner to novice, as shown below:

Computer Expertise By Age



Advanced computer skills also appeared to be somewhat more concentrated among more recent hires, mid-grade staff (particularly those in grades 9-12), and the college educated (those with bachelors but not advanced degrees).

Overall, nearly 30% of respondents had had some participation in BPR efforts. This participation was highest among Trademark staff (41%) as opposed to Patent staff (20%). On the whole, examiners were less likely to have participated in the BPR process than other job categories, both in the Office of Patents and the Office of Trademarks. While unsurprising, given the production quotas to which examiners are held, this finding does raise the question of whether examiner input is sufficient in the BPR effort.

We cross-tabulated participation in the BPR process with office automation policy questions to test the hypothesis that participation may influence respondents general perceptions concerning the pace of office automation change and their voice in it. Interestingly, there were no differences between those who have had some participation and those who have in terms of the information they receive concerning office automation policy decision making and the influence they have in the process.

Some commentators in focus groups appeared to despair that the process would ever produce concrete results; survey results generally support the conclusion that the BPR process has not increased the feeling among participants that their voices are being heard.

Bibliography

Business Reengineering Team. *Patents As-Is Activity Model: Reader Kit.* U.S. Patent and Trademark Office, U.S. Department of Commerce, April 11, 1994.

Cohen, Senator William S. *Computer Chaos: Billions Wasted Buying Federal Computer Systems.* Subcommittee on Oversight of Government Management, Senate Governmental Affairs Committee, October 12, 1994. (32 pages)

Lucas, Jay, Matthews, Alan, Purcell, Arthur, Stouffer, Richard and Swann, Judy. *Analysis of Advantages of APS.* Office of Planning, Development and Evaluation, Search and Information Resources Administration, Patent & Trademark Office, March 31, 1994. (29 pages)

Stouffer, Richard T., Marvin M. Lateef, John J. Watson, and Richard J. McGarr. *Response to the Mathis Report.* Office of Search Systems, Search and Information Resources Administration; The Patent & Trademark Office Patent Academy. March 1995. (34 pages)

U.S. Government Accounting Office, Report to Congressional Requestors. *Patent and Trademark Office: Key Processes for Managing Automated Patent System Development Are Weak.* September, 1993.

U.S. Patent and Trademark Office. *Automated Patent System: Is it Meeting Examiners Needs?* U.S. Department of Commerce, January, 1995.

U.S. Patent and Trademark Office. *Strategic Information Technology Plan: FY95-FY2000.* U.S. Department of Commerce, June 24, 1994 and October 24, 1994 Drafts.

U.S. Patent and Trademark Office. *Working for Our Customers: A Patent and Trademark Office Review*, FY94.

U.S. Patent and Trademark Office. *Setting the Course For Our Future: A Patent and Trademark Office Review*, FY95.

U.S. Patent and Trademark Office. *Automation Master Plan: Developed in Response to Section 9 of P.L. 96-517.* U.S. Department of Commerce, October, 1982, page iii.

U.S. Patent and Trademark Office. *Strategic Information Technology Plan: FY96-FY2001.* U.S. Department of Commerce, December 1995.

U.S. PTO. *Strategic Information Technology Plan: FY95-FY2000.* U.S. Department of Commerce, December 1994.

Glossary of Terms

286, 386, 486 computer: See *x86 computer.*

ACTO: See *Administrator for Computer and Telecommunications Operations.*

Administrator for Computer and Telecommunications Operations (ACTO): The Administrator for Computer and Telecommunications Operations (formerly OCTO) manages the PTO's centralized computer, data, and telecommunications facility; provides maintenance and technical support for all distributed hardware and software throughout the agency; and provides routine modifications to meet changing program requirements and improve performance of PTO's operational production systems and communications networks.

Anadex: Brand name of the old dot matrix printers used in conjunction with the *T-Search* system, predecessor to the *X-Search* system used today by Trademark examiners.

Applet: See the *Internet.*

Application: A computer program or computer software designed to fulfill a specific set of functions. Common business application types include those designed to perform word processing, spreadsheet, communications, database, graphics, and project management functions. Specialized applications often specifically developed for a particular organization are designed to serve a variety of other functions, such as the tracking, financial and searching applications at PTO.

APS: See *Automated Patent System.*

APS access (Log-in ID and Password): Access to APS is controlled by two sets of numbers: (1) a (constant) log-in ID and a password (which periodically must be changed) for accessing APS through image workstations (text and image accessibility) or single screen, shared-use text terminals (text only accessibility); and (2) an entirely different (constant) log-in ID and a password (which periodically must be changed) for accessing *PTOnet* at a desktop PC. Most patent examiners are able to access *APS* Text from their *desktop PC* through *modems* which have been provided by PTO or purchased by the examiners themselves.

APS coverage: APS' text and image retrieval capabilities provide patent examiners with access to two distinct sets of U.S. patent material. Patent examiners with access to image retrieval are theoretically able to look at 5.8 million U.S. patents dating back to

1790. In practice, Patent examiners find that some patents (or pages within those patents) are "not available" to them. U.S. patents available for text search and retrieval date back to 1971.

APS hours of operation: *APS Text* and *Image Search* is now available to examiners from 6:30 am - 9:00 p.m. Monday through Friday and from 7:30 a.m. - 5:00 p.m. on Saturday, Sunday and some holidays.

APS Image: See *Classified Search-Image Retrieval (CSIR).*

APS Text: See *Text Search.*

Art unit: An art unit is a subgroup of one of PTO's sixteen examining groups. Examining groups are divided into four to sixteen art units, each of which is represented by a four digit number. For example, art unit 1302 (food or edible material, processes, compositions and products) is one of the eight subgroups which make up Group 1300 (Specialized chemical industries and chemical engineering). Art units are headed by a *Supervisory Patent Examiner (SPE).*

Assignee search function: In an *APS Text Search*, one index or specific area of a patent available to word search are the names of companies, corporations, or persons to which patents are assigned.

Automated Information Systems (AIS): PTO's automated infrastructure includes a number of distinct and complimentary automated information systems. Many of the PTO's management information and day-to-day operating processes are also automated and dependent on the availability of adequate information technology resources for support. PTO's AIS serve a wide variety of users and there will continue to be rapidly developing and diverse opportunities to employ information technology to improve how the PTO conducts its business.

Automated Patent System (APS): The Automated Patent System (APS) is comprised of several major *automated information systems* which have been or are being developed to automate all aspects of PTO's patent operations. The systems which are projected to make up APS in the future include the *Classified Search-Image Retrieval (CSIR)* system, the *Classification Data Systems (CDS)* system, the *Text Search* system, the *Patent Application Management (PAM)* system, and the *Global Patents System*. The latter two systems are not yet operational. PTO is planning to add two additional automated information systems to APS in the future: a *Non-Patent Literature (NPL)* system and an Appeals Case Tracking System (ACTS).

Bar code reader (BCR): An electronic computer peripheral device used in conjunction with the *PALM* and *TRAM* tracking systems that reads serial numbers encoded on labels attached to *docket files*. The BCR reflects a light signal off the bar code label, which contains a series of black bars of different thickness' on a white background to represent different letters or numbers. The reflected light is translated by the BCR into a computer readable serial code to identify the location of the particular file to which the bar code label is attached.

BCR: See *bar code reader*.

Board of Patent Appeals and Interferences (BPAI): A review board within the Office of Patent that is the first recourse of an applicant after a patent claim has been rejected after examination by a Patent examiner. If the BPAI also rejects the applicant's claim, an appeal can be made to the Federal Circuit Court of Appeals, which has the ultimate jurisdiction.

Boolean logic: Boolean logic pertains to an algebraic system to combine variables, such as propositions and computer logic elements, through which multiple terms can be searched on *APS* using the operators AND, OR and NOT.

Borland: A manufacturer of popular home and business software, including the *database* system Paradox.

BPAI: See *Board of Patent Appeals and Interferences*.

BPR: See *Business Process Reengineering*.

bps: Bits per second—a measure of computer processing speed.

"Break" function key: The "break" function key on the cluster workstation terminals is supposed to allow a user to terminate an executed operation before it is completed.

Burroughs: Makers of the *PCs* used in conjunction with the *T-Search* system, predecessor to the *X-Search* system in the Office of Trademark.

Business Process Reengineering (BPR): The objective of Business Process Reengineering, a management technique widely used throughout the private sector, is to significantly improve the efficiency and effectiveness of an organization's processes. PTO recently established a BPR program and has aggressively pursued its expansion. In 1994, a newly established Office of Business Process Reengineering began the development of a new vision for PTO operations.

Cathode ray terminals (CRT): An old technology for video display terminals for computers. *TRAM* and *PALM* both use these types of terminals.

CAS/STN: See *Chemical Abstracts Service* and *commercial databases.*

CASE tools: See *Computer Aided Software Engineering.*

Cash Receipts/Deposit Accounts (CRDA) System: A computer system that tracks the collection and processing of the fees that accompany Patent and Trademark applications.

CCI: The old "nuts and bolts", text-based electronic messaging communications network that preceded *PTOnet.* While the CCI network was relatively fast, it had few of the features present in the modern PTOnet.

CDS: See *Classification Data System*

Center for Quality Services (CQS): PTO's Center for Quality Services provides guidance, coordination and assistance for ensuring quality services to internal and external customers. The center's activities include assistance in understanding customer needs and expectations so that quality services can be defined; establishing service standards; measuring customer satisfaction; benchmarking; and, determining the policy and requirements of necessary training for a quality-driven work force.

Central Processing Unit (CPU): The "brains" of a computer that consists of a microprocessor or computer chip and a central storage medium.

CIO: See *Chief Information Officer.*

Chemical Abstracts Service: A commercial information vendor that repurchases, repackages and resells Patent information. See also *Derwent, Dialog, Mead Data Central, MicroPatent,* and *commercial databases.*

Chief Information Officer (CIO): PTO's Chief Information Officer is the principal advisor to the Commissioner of Patents and Trademarks on the evaluation of information technology, the architectural design of automated initiatives, and the development of strategic information technology plans.

Classification: A number of schedules, definitions, indices and other search tools have been developed to organize U.S. and foreign patents and non-patent literature into technical categories or classifications. These classification schemes include the *U.S. Patent Classification System*; classification schemes developed by foreign governments, such as the *European Patent Office (EPO)* and the *Japanese Patent*

Office (JPO); the International Patent Classification system; and the classification schemes developed for *commercial databases*. Every patent application received by PTO is assigned a class and a subclass number. These numbers determine which *examining group* and *art unit* the application should be assigned to and which art the examiner should search to make a patentability decision. The U.S. Patent Classification System is continually revised and patents are routinely reclassified in order to make the system more efficient and accurate.

Classification Data Systems (CDS): One of the five major automated information systems that make up the *Automated Patent System*, the Classification Data Systems (CDS) system makes it possible to maintain *classification* data for all patent and application documents within a unified database. CDS was first introduced in 1982 and updated in 1993. An incremental enhancement project to improve hardware and software is scheduled for deployment over the period FY95-FY99.

Classified Search-Image Retrieval (CSIR): One of the major automated information systems that make up the *Automated Patent System*, the Classified Search-Image Retrieval (CSIR) system provides image searching of over 5.8 million patents dating back to 1790 on dual screen workstations to four of the sixteen Patent Examining Groups or approximately 23% of the Patent Examining Corps. PTO currently adds approximately 2,000 patents to the CSIR system each week. The CSIR system is comprised of the Image Search database and the CSIR software. CSIR was introduced in incremental phases beginning in 1988. Desktop deployment to all examiners is scheduled to begin in FY96 and be completed by FY99.

Classifiers: Classifiers analyze the subject matter of a patent application and determine its technical classification. Classifiers make primary (class) and secondary (subclass) assignments, which are primarily based on the U.S. classification system. They are also responsible for reclassifying patents.

Client-server architecture: In a client-server architecture, each computer application is divided into two parts: a client task communicating with the end user and a *server* task communicating with client tasks and/or other server tasks. The client task executes the front-end user interface application and handles only the data needed to perform specific functions. The server task performs the primary data processing tasks that need to be shared by multiple users (clients). There can be many types of servers, including print, facsimile, electronic mail, computation, application, file and *database* servers.

Clone: A computer or computer component legally copied using technology purchased or licensed from the original developers. Popularly, a *clone* refers to a *personal computer* manufactured according to the specifications IBM/Intel "*x86*" chip designs.

Cluster rooms: Cluster rooms house groups of the shared use *image workstations* and *text terminals*, and are located throughout the areas of the PTO which house patent examiners.

Cluster workstation: Also called an image workstation, a cluster workstation is one of a group of workstations located in a single room or cluster that allow examiners to access the *CSIR* and *APS Text Search* systems. Approximately 22% of the Patent Examining Corps -- Groups 2200, 2100, 2300 and 1200 -- currently have access to one or more clusters of the cluster workstation.

Commercial databases: There are a number of commercial, technical databases -- notably *CAS/STN, Dialog, Orbit, Derwent, Lexis, Westlaw* -- that have been made available to certain groups within the *examining corps* and even to certain patent examiners within an examining group based on their technical information needs. If patent examiners have the proper account number, they can access those databases that have been "offered" to them at several locations: from their desktop PC; from a *CSIR cluster workstation*; from a single screen, shared-use *text terminal*; or at a terminal in the Scientific and Technical Information Center (STIC).

Commercial Off-the-Shelf (COTS) software: Commercial-off-the-shelf software packages are commercially available software packages that are not customized to specific user needs.

Computer Aided Software Engineering (CASE) tools: Computer Aided Software Engineering tools are used to support the implementation of the information engineering methodology and the software applications that automate (at least in part) a particular task, such as development of documentation or writing program code. PTO has chosen CASE tools to assist in the development and maintenance of its *automated information systems*. These tools are expected to aid PTO in achieving specific goals, such as: to focus on strategic planning and business goals to build systems that better meet PTO "corporate" needs; to better integrate information systems by using shared data that is centrally controlled; and to stabilize representation of data that will not dramatically change as business procedures change.

Concordance: A concordance maintains the correlation between any class and sub-class of the *U.S. Patent Classification System* and the corresponding class and sub-class within the International Patent Classification system.

Configuration Management (CM): A configuration management program improves an organization's ability to manage and control the various components of computer hardware, software, and documentation. PTO's CM program is concerned with the baselining of automated data processing (ADP) resources and controlling changes to

the baseline of any ADP resource under the CM umbrella. PTO's automated CM tool, the Product Control Management System (PCMS), was acquired in FY94.

Copending Application: A computer application available from desktops and X-*Search* terminals which Trademark examiners use to conduct a "copending" search--a search prior to examination to identify whether an applicant has more than one concurrent application. If this is the case, the latest application is passed on to the examiner assigned to the earlier application(s), thereby reducing potential inconsistencies in examination.

CorSearch: A commercial information vendor that repurchases, repackages and resells Trademark information. See also *Imsmarq, Mead Data Central, NERAC, Thomson & Thomson*, *Trademark Research* and *commercial databases*.

CPU: See *central processing unit*.

CQS: See *Center for Quality Services*.

CRDA: See *Cash Receipts/Deposit Accounts System*.

CRT: See *cathode ray terminals*

Cross-tabulate: To break out survey statistics by combining the results of two or more variables, usually with the purpose of determining a relationship among the variables.

Database (DB): Generically, any organized collection of information. More specifically refers to computer applications through which users enter and maintain information. See also *Database Management Systems (DBMS)*.

Database Management System (DBMS): A Database Management System is the information engineering methodology and the software applications used to manage database systems. The major types of databases are flat files, hierarchical, relational and text-based. Both flat files and hierarchical databases are considered outdated for most purposes since they are difficult to program and maintain because they require users to know the physical location of data in the computer's storage memory in order to access information. Text databases are used for specialized, text-rich applications. The current state-of-the-art for most business purposes is the relational database model.

The advantages of modern relational databases are the reduction of data redundancy, the ability of users to access information without in-depth knowledge of programming languages, *graphical user interfaces* that make operations easier, and the ability to run sophisticated ad-hoc queries to access information in many different forms. There are

a variety of relational database platforms and languages available. Where cost-effective and feasible, PTO will be transitioning to standard DBMS's.

Datamaxx: Brand name of the *cathode ray terminals* (CRT display) used by the *TRAM* system. Such terminals are now considered outdated technology.

DB: See *Database*.

DB2: A formerly popular *hierarchical database* language that serves as the structural backbone for *TRAM* data. This language is now considered outdated and inflexible compared with state-of-the-art *relational databases* available today. See also *Database Management System*.

Dedicated terminals: Specialized terminals dedicated to a single *application* or a very limited set of applications. Dedicated terminals contrast with *PCs* linked to *client-server local* or *wide area networks*. Through which users can access a host of applications that can be continuously updated and changed, if necessary.

Derwent: A commercial information vendor that repurchases, repackages and resells Patent information. See also *Chemical Abstracts Service, Dialog, Mead Data Central, MicroPatent* and *commercial databases*.

Desktop PCs: PTO has placed some type of *personal computer (PC)* -- 386, 486 or Macintosh -- on the desktop of most staff members. At present, nearly all of these PCs agency wide are hooked up to PTO's *client-server* network, *PTOnet,* though not all of PTO's major business *applications* are available on the network.

Docket file: The main file that is the repository of all of the important documents concerning a particular patent or trademark application. The *PALM* and *TRAM* systems track the physical locations of these files as they move about the office, passing through numerous hands in the course of processing a single application.

Document Management System (DMS): PTO is developing the Document Management System to replace PTO's current image loading software, called Off-Line Load (OLL). DMS will consist of generic load software for images and the utilities necessary to maintain and report on the status of all APS end-user databases -- both text and image. DMS will also provide all support functions for text and image data, including software tools to manage data stored on the APS system; enhancement to the load of data to APS; and dissemination of the data resident on APS to the public and other customers on demand.

Dots per inch (DPI): A measurement of the resolution for graphic video displays and computer printers.

Electronic lexicon: An electronic lexicon would allow examiners to cross reference foreign terms with their English equivalents.

Electronic personal digest: An electronic personal digest is a tool that allows an examiner to put together an electronic collection of technical material -- such as journal articles and foreign patents -- to facilitate the examiner's individual search process.

European Patent Office (EPO): The European Patent Office is the organization responsible for maintaining patents issued by European countries.

Examiner Toolkit Project: The Examination Toolkit Project was established in 1994 -- as a matrix management team between the Office of *Chief Information Officer* and the Assistant Commissioner for Patents -- to identify, develop and deploy in a maintainable configuration, software tools which assist the examination process. A patent automation strategy that specifically tasks the Examination Toolkit Project with improving the quality of the search process by providing all examiners with enhanced computer functionality at their desk has also been approved by the Commissioner of Patents and Trademarks.

Examining Group: PTO's Patent Examining Corps is divided into sixteen technical examining groups, each of which is described by a four-digit number. For example, Group 1200 is responsible for examining patents which involve Organic Chemistry Drugs and Bio-Affecting and Body Treating Compositions, while examiners in Group 1800 are responsible for examining patents which involve Biotechnology. Chemical examining groups begin with #1, electrical with #2 and mechanical with #3.

File integrity: File integrity refers to the completeness of the manual and automated search files. The reliability of any given search is dependent upon all patents being available to an examiner. Searches in the manual system, "*the shoes*," are often compromised because all patents are not always available. This is particularly true in very active arts, such as biotechnology or computer systems. While examiners are sometimes given a "patent not available" message using *CSIR* or *Text Search*, file integrity in general is much greater in the automated search systems.

Firewall: Security measures that reduce the chance that an unauthorized user can break into a network.

First generation workstation: The first custom-built *CSIR* workstations provided to Group 2200 in 1988 and then to Groups 2100 and 2300 in 1990 and 1991, are referred to as first generation workstations.

Flat file: See *Database Management Systems (DBMS).*

Flip rate: Flip rate is the time it takes to go from page-to-page or document-to-document using *CSIR*.

Focus group: A focus group is a gathering of commentators (in this case, the front-end users of PTO's office automation system -- examiners, clerical staff, administrators, managers, etc.) to elicit their opinion on a given subject (the extent to which office automation is meeting their information needs). Focus group sessions are typically kept small, in terms of the number of people, and informal, in terms of the approach to engaging people in the discussion.

Foreign art: Many patent examiners need to research foreign patents for a substantial percentage of their cases. Foreign text can be accessed through several sources, including *APS Text*, *commercial databases*, and the *shoes*. The only foreign art currently available on APS -- through the text-search-only, shared-use text terminals -- is *Japanese Patent Office (JPO)* abstracts dating back to 1980. Foreign images are currently not available at all on the image workstations. Many patent examiners research foreign art through commercial databases that have been made available to them by PTO. One of the primary database sources for foreign patents is *Derwent*, a London-based service that provides well-translated patent abstracts from primarily European countries, as well as Russia. Coverage by Derwent, however, is not universal, and because it is a commercial database, it is not available to the entire Patent Examining Corps. The final option for researching foreign art is to go to the shoes. There are separate shoes for storing foreign art under the corresponding U.S. patent class and subclass shoes.

Freestyle search: Freestyle search is a method of searching text in a database without limiting the search to specific fields, such as title or abstract. The search query is applied to the entire *database*. *Lexis* uses the freestyle method of searching.

Fuzzy logic: Fuzzy logic is a multivalued or "vague" logic in which everything is a matter of degree, including truth and set membership. This approach is in contrast to conventional logic which treats events as bivalent; that is, they are either true or false, in Set A or Set (not A) -- but not both. Fuzzy logic would allow for an event to be in Set A and Set (not A).

Generalized Image Service (GIS): The objective of PTO's Generalized Image Service project is to provide a standard Application Program Interface for management of and access to image data, independent of data format, media, and location. All projects related to the management of digital image access will eventually be brought under a single GIS.

Global Patents: One of the five major automated information systems that make up the *Automated Patent System*, the Global Patents project will ultimately make domestic and international patent information available to the examiner on the desktop. This system is expected to be deployed in the period FY95-FY2000. PTO defines global patents as U.S. patents (text and image), foreign patents (text and image), and foreign patent search tools.

Government Client Support Help Line: See *Help Line*.

Government Corporation: This refers to the concept of "privatizing" certain government agencies, making them resemble private businesses. PTO became a target of this move as early as 1985, when the National Academy of Public Administration recommended PTO as an ideal candidate. More recently, California Representative Carlos Moorhead has drafted a bill to transform PTO into a corporation; in May 1995, the Clinton Administration also proposed the conversion of PTO into a corporation which would continue to receive policy direction from the Commerce Department. Many groups support such a move, including AIPLA and the ABA.

Graphical user interface (GUI): Literally, what a user of a computer *application* sees. A graphical user interface is the set of graphics--"windows", menus, buttons, pictures, text--that allow a user to access and use a particular application without detailed knowledge of programming. In recent years, graphical user interfaces have become increasingly sophisticated, eliminating the amount of time it takes for a user to learn an application, reducing errors in usage, and allowing users to perform complex operations that could only be accomplished previously by computer programmers or very sophisticated users.

Group printer: Group printers are connected via a *local area network* to groups of *cluster workstations* for printing selected patents or text search information accessed on the workstations.

GUI: See *graphical user interface*.

"Help" function key: The "help" function key on the *cluster workstation* terminals and single screen, shared *text terminals* is supposed to guide examiners in the use of the text search and image search systems.

Help line (305-9000): A centralized "help line" on 305-9000 -- or the Government Client Support Help Line as it is officially known -- supports all user automation problems. PTO is currently moving away from a centralized help line structure to on-site help desks at designated locations.

Hierarchical database: See *Database Management Systems (DBMS)*.

High density optical storage devices (juke boxes): PTO's HDD is a high density optical storage device consisting of a Sony Autochanger, or jukebox-like peripheral, attached to a network server designed as an Intelligent Controller (IC). Currently, there are seventeen (17) active ICs with Autochanger, each capable of holding fifty (50) double-sided optical disks. The HDDs store image data at 300 dots per inch (DPI) for relatively slow speed/high resolution printing. A separate, related peripheral, the rapid access device (RAD), is used for faster image retrieval tasks (such as browsing). RADs store image data at 150 DPI.

Image workstations: See *cluster workstations*.

Image search: See *Classified Search-Image Retrieval*.

Imsmarq: A commercial information vendor that repurchases, repackages and resells Trademark information. See also *CorSearch, Mead Data Central, NERAC, Thomson & Thomson*, *Trademark Research* and *commercial databases*.

Infoman: New automated call tracking software used to keeps records on response time and other aspects of calls to the PTO *Help Line*.

Information Resource Management (IRM) policy: PTO's recently established Information Resource Management (IRM) policy calls for the centralization of technical direction, information technology planning, policy formulation, system development and acquisition, business process improvement and IRM Program oversight under the *Chief Information Officer*. Day-to-day operational management of the PTO information technology infrastructure will be under the direction of the Associate Commissioner and Chief Financial Officer. This management framework will provide for the evolutionary application of new technology and foster uniformity throughout the PTO through standardization of hardware, software, and data to the maximum extent possible.

International Trademark Association (INTA): INTA is an external customer who a substantial interest in PTO's automated systems, along with other patent and trademark-related interest groups.

Interference: An interference is a process by which the PTO arbitrates which of two applicants with essentially the same invention should be granted a patent.

Interference prints: Interference prints are drawings of all pending applications kept in a file by subject matter which are to be searched before an application is allowed to locate any potentially interfering applications.

International Standardization Organization (ISO): The International Standardization Organization is an international organization based in Geneva. Most of the ISO's member institutes are governmental bodies from around the world. The ISO establishes international agreements for standards on products and commerce.

The Internet: A public communications network that connects millions of individual *personal computers* around the world for the transfer of information (text, graphics, sound files, video), communications, and most recently, the running of mini-computer applications--called "*applets*". Around for nearly 30 years, the Internet has only exploded in the past couple of years, primarily due to the advent of the *World Wide Web*, a graphical "section" of the Internet that allows users to communicate, view and download files, run applications, and perform other operations through clicks of their mouse buttons. Many corporations and individuals have jumped on the Internet bandwagon in the past year, putting up "Web Sites" and "home pages" for users to view and download information provided by the corporation or individual via a collection of computer files stored on an Internet or "web" server.

Internet Protocol Suite (TCP/IP): The Internet Protocol Suite is a standardization protocol for accessing the Internet -- a public communications network used in over 30 countries.

Internet Server: A *server* connected to the *Internet*.

Japanese Patent Office (JPO): The Japanese Patent Office is PTO's counterpart agency in Japan.

Lexis: See *commercial databases*.

Life Cycle Management (LCM): In January, 1994, PTO established a group to define and institutionalize a standard system development life cycle management process. A first draft of an LCM Manual was completed in July, 1994 with the assistance of the Software Productivity Consortium.

Local area network (LAN): An interconnected network of computers within an office or a group of office located in close proximity. See also *wide area network*.

Local printer: Local printers are connected directly to a *cluster workstation* or single screen, shared *text terminal*.

Log-on/connect time: Log-on or connect time is the amount of time it takes to access any aspect of the *Automated Patent System*.

Macintosh: The brand name of a popular line of *personal computers* manufactured by the Apple Corporation. At one point, Apple Corporation was the largest single personal computer manufacturer in the world, however, its failure to license its technology to other companies to produce *clone* computers has been widely blamed for its recent declining fortunes. The popular *Windows* operating system running on IBM personal computers and its clones using the Intel *"x86"* line of processors have come to dominate the personal computer market in recent years, with more than a 80% share of the PC market worldwide, by attracting a critical mass of interchangeable software and hardware components. Apple has recently decided to license its technology to other companies to make clones, however, many analysts believe that this move has come way too late to regenerate widespread interest in Macintoshes and other Apple computers. Apple remains entrenched, however, in the niche educational and high-quality graphics markets.

Mainframe computer: A large, centralized computer containing files and applications that are accessed by multiple users, usually through *dedicated terminals*. Mainframes have greater storage capacity than *mini* or *personal computers*, but the inflexibilities of centralized computer systems and rapid advances in technology that have greatly increased the storage capacity of smaller computers have led to the rise of the *client-server* architecture.

Management Information Systems (MIS): Refers generically to office automation systems within an organization that allow the processing and management of information. Connotes an older, centralized office automation structure and management style.

Mead Data Central: A commercial information vendor that repurchases, repackages and resells Patent and Trademark information. See also *CorSearch, Imsmarq, NERAC, Thomson & Thomson*, *Trademark Research* and *commercial databases*.

Messenger: Messenger is a licensed, proprietary *Boolean* search software that permits word, proximity and truncation searching. Developed by the Chemical Abstract Society, Messenger is used by examiners to search *APS' Text Search* system, the *Classification Data System*, and the Japanese Abstracts database.

Microcomputer: See *personal computer*.

MicroPatent: A commercial information vendor that repurchases, repackages and resells Patent information. See also *Chemical Abstracts Service, Derwent, Dialog,* and *Mead Data Central*.

Middleware: Middleware refers to hardware and user-friendly (graphical) software interfaces that act as conduits for information contained in legacy systems.

Mini-Computer: In between large *mainframes* and *personal computers,* mini-computers are mainly used by small and medium businesses who need centralized data storage capacity, but whose needs do not justify the purchase a mainframe.

MIS: *Management Information Systems.*

NADES: See *New Application Data Entry System.*

Named Document Collection (NDC): A Named Document Collection is a set of patent images that an examiner has pulled up during a search. Examiners can save NDCs on *APS* for future use.

National Information Infrastructure (NII): An initiative of the Clinton/Gore Administration, the objective of the National Information Infrastructure is to bring vast amounts of information to the public via a seamless web of communications networks, computers, databases and consumer electronics. The NII initiative sets a goal to provide the broadest possible access to governmental databases, providing both the content of this information as well as a means through which this information can be distributed.

National Information Infrastructure (NII) Advisory Council: The Department of Commerce has formed the National Information Infrastructure Advisory Council to address the technical, policy, and privacy issues associated with NII.

NERAC: A commercial information vendor that repurchases, repackages and resells Trademark information. See also *CorSearch, Imsmarq, Mead Data Central, Thomson & Thomson*, *Trademark Research* and *commercial databases*.

Network server: See *server.*

New Application Data Entry System (NADES): The data entry, uploading and editing software for *TRAM* and, since TRAM information is later transferred to *X-Search*, for X-Search as well. Used both by initial data entry contractors as well as PTO staff who perform updates and edits.

Non-patent literature (NPL): Non-patent literature is all of the technical literature that is used in the patent examination process that is not a U.S. or foreign patent. NPL includes journal articles, books, etc. PTO is considering the development and deployment of an NPL search and retrieval system, which it will begin defining in FY1999.

Novell: A maker of software, including the popular Word Perfect word processor.

NPL: See *Non-patent literature*.

OCTO: Stands for Office of Computer and Telecommunications Operations, which is now called the *Administrator for Computer and Telecommunications Operations* (ACTO). See above.

Office action: An office action is a communication from the examiner with respect to the merits of the application involved, such as a letter setting forth rejections or a Notice of Allowance.

Office of Business Process Reengineering (OBPR): The Office of Business Process Reengineering analyzes the Patent and Trademark Office's business enterprise and practices through the application of business process reengineering techniques, such as activity and simulation modeling, activity-based costing, and functional economical analysis. The Office provides central guidance, coordination, and assistance for documenting current processes; designing new processes to meet the user and customer requirements for Patent and Trademark Office products and services; researching, analyzing, and recommending policy options related to new processes; and developing plans for the transitioning from current processes to reengineered processes.

Office of Computer and Telecommunications Operations (OCTO): See *Administration for Computer and Telecommunications Operations* (ACTO).

Office of Information Dissemination (OID): The Office of Information Dissemination develops, maintains, and disseminates a diversified portfolio of patent and trademark information to the public. The OID develops electronic information products and services; distributes patent and trademark information on U.S. technological and economic activities; and provides information dissemination support services to PTO customers.

Office of System Architecture and Engineering (OSAE): The Office of System Architecture and Engineering, an office within the Office of the *Chief Information Officer*, develops the foundation system architecture for PTO's information technology infrastructure and plans the technological evolution of the Agency's *automated information systems*.

Office of System Development and Acquisition (OSDA): The Office of System Development and Acquisition, an office within the Office of the Chief Information Officer, establishes procedures, technical standards, software tools, and training that supports the system development life cycle and administers the project management structure for the development, test, implementation, and maintenance of the PTO's AIS.

The OSDA acquires information technology hardware and software products and services consistent with PTO's *strategic information technology plans* and supporting information technology infrastructure.

Oldest effective priority date: The oldest effective priority date is the oldest filing date to which any application having a parent application is entitled priority under either 35 USC 119 or 35 USC 120.

On-line tutorial: An on-line tutorial allows a user to learn how to operate a software program while actually using the program.

Open system: The open system standards define the format in which data is exchanged, remote systems accessed, and services invoked. The acceptance of open system standards supports the creation of system architectures that can be built from technology components available from many vendors.

Optical Character Recognition (OCR): One of the matrix management teams that PTO established to facilitate in the design and implementation of major automation projects. Each matrix team is headed by a user and a manager from the CIO.

Oracle: A widely used *Relational Database Management System* for large scale business applications.

Orbit: See *commercial databases.*

Patent examining corps: The patent examining corps is made up of professionals in the PTO engaged in the examination of patent applications. Members of the patent examining corps examine patent applications and reissues of patents to determine if the applicants are entitled to patents. Patent examiners also process reexamination and statutory invention registration requests and search and examine International applications filed under the *Patent Cooperation Treaty*.

Patent and Trademark Copy Sales (PTCS): The Patent and Trademark Copy Sales system is an automated system using the *Classified Search and Image Retrieval System* (CSIR) for filling requests from the public for copies of patents.

Patent and Trademark Depository Libraries (PTDL): The Patent and Trademark Depository Libraries around the country are designated libraries which receive patent and trademark information in various forms to enhance access of patent and trademark information to the general public.

Patent Application Correction Entry System (PACE): Pre-examination staff enter bibliographic data about an application into PACE before it is sent to the examining corps. This data is then uploaded from PACE into PALM (see below).

Patent Application Location and Monitoring (PALM) System: The Patent Application Location and Monitoring (PALM) system is PTO's system for tracking the location and status of a patent application through the examination process.

Patent Application Management (PAM): One of the five major *automated information systems* that make up the *Automated Patent System*, the Patent Application Management system will fully automate the patent application process, including the filing of a patent application and managing the application through PTO. This system will eventually replace the current *Patent Application Location and Monitoring System* (PALM) and is expected to be deployed in the period FY95-FY2000 under the *System Development and Maintenance* (SDM) contract.

Patent Cooperation Treaty (PCT): The PCT provides standardized filing procedures and formats for member countries and centralized processing of multi-country patent applications. Some 44 countries are members of the PCT, which came into effect in January 1978.

Patent pendency: Patent pendency is the amount of time from the receipt of the application to application issue or abandonment. The current target period for patent pendency is eighteen months.

Patent search files: The patent search files include both the automated -- through the *Automated Patent System* -- and paper-based -- through the *shoes* -- files of issued patents.

PC: A *personal computer*. Also refers colloquially to a computer that uses the popular "*x86*" processors manufactured by Intel or other licensed companies in contrast to PCs using processors created by the Motorola Corporation for Apple *Macintosh* computers. Though the x86 technology now has more than 80% of the PC market worldwide, Apple has recently allowed its computer technology to be licensed and cloned by other companies, a move that IBM and Intel made back in the mid-1980s and to which many analysts give credit for the market dominance of the latter technology.

PCT: See *Patent Cooperation Treaty*.

Peak usage periods: Peak usage periods are those times of the day, days of the week, and weeks of the month during which there are the highest number of users accessing the networked systems, such as the *Automated Patent System, X-Search, TRAM, PTOnet,* and *PALM*.

Pendency: The amount of time from initial receipt of a patent or trademark application to final decision on that application.

Pentium: See *x86 computer*.

Personal computer (PC): A computer designed for personal home or business usage as opposed to a *mini* or *mainframe* computer, which have greater storage capacity and serve as the repository of applications and files accessed by a number of users, usually through *dedicated terminals*.

Pre-Grant Publication (PGPub): In response to Congressional legislation, PTO recently decided to redirect the *Patent Application Management* (PAM) effort towards the development and implementation of the Pre-Grant Publication system. By January 1, 1996, PTO will publish patent applications within 18 months of the earliest filing date. As of September 1995, the passage of legislation authorizing PGPub was in doubt

Primary Examiner: A patent examiner is someone who has completed a signatory review process and has been granted the full authority to finally reject applications or allow them to issue as patents on behalf of the Commissioner.

"Print" function key: The "print" function key on the *cluster workstations* and single screen, shared *text terminals* allows users to request a printed copy of data or documents.

Product Control Management System (PCMS): Product Control Management System is an automated commercial-off-the-shelf application which supports *configuration management* functions for identifying components, managing changes to components, releasing systems versions, and relating items for impact analysis and maintaining synchronous components. PCMS is implemented by applying the organization's policies, procedures, methodology, and *life cycle* processes through the tool.

Pseudomarks: Searchable terms in the *X-Search database* that attempt to translate non-standard items used in Trademarks into common everyday words that can be more easily found by Trademark examiners through a standard search.

PTOnet: PTOnet, or the PTO Network, is a comprehensive end-to-end data transmission facility linking all computers in the PTO -- from the largest *mainframes* to the smallest intelligent terminals. This *local area network* (LAN) currently connects computers in thirteen buildings in Crystal City, providing network service to approximately 3,900 customers of office automation products, data (electronic mail and document sharing), and Patent, Trademark, and other business applications stored on

network file servers, mainframes, and *minicomputers*. The implementation of additional applications or systems, such as *PAM*, Desktop Workstation Deployment, Patent and Trademark Assignment System, and *Global Patents* will require continuous enhancements to PTOnet to ensure satisfactory user support.

PTO Newsletter: The PTO Newsletter is a regular publication which aims to keep staff informed of new developments in PTO operations and systems.

RAM: See *Revenue Accounting and Management System.*

RDBMS: See *Database Management System (DBMS).*

Refresher/update training: Refresher or update training is considered to be any training an examiner receives on *Image Search*, *Text Search*, *commercial databases*, or Windows after their initial training on these systems.

Relational Database: See *Database Management System (DBMS).*

Request for Proposal (RFP): A formal, publicized announcement of a contract competition to solicit bidding by prospective contractors. Usually includes a description of the project, detailed specifications of the tasks and duties of the contractor, and criteria on which the proposals will be judged.

Requirements Traceability Management (RTM): In order to better manage the functional and performance requirements of *APS*, PTO's Office of *Chief Information Officer* is planning to acquire an automated requirements tool called Requirements Traceability Management.

Revenue Accounting and Management System (RAM): A new fee processing system designed to replace *CRDA*. The RAM system is scheduled for implementation in October 1996.

RFP: See *Request for Proposal.*

Second generation workstation: The second version of the custom-built *CSIR* workstations that were provided to Group 1200 and 2300, and a public search facility in 1993 are referred to as the second generation workstations.

Server: A computer that contains the software and hardware that allow other computers to link into a computer network. The server contains communications and security software that control how and when clients are able to communicate with other clients on the network. In addition, servers may store applications or files for network

users to access centrally, reducing duplicative storage on client computers and simplifying applications maintenance.

Service Level Agreement (SLA): Formal specifications of the standards that govern the relationship between two organizations and spell out the mutual expectations of the two groups.

Shared Use System (SUS) workstation: The third generation of *CSIR* workstations, which were supposed to be installed by mid-March, 1995, are referred to as the shared use workstations (SUS). The SUS workstations are a hybrid of commercially available and custom-built software and hardware components.

The shoes: A manual, paper-based system which antedates the introduction of automation, the shoes are comprised of wooden and metal shoebox-sized drawers which contain copies of patents dating back to the time patents were originally granted by the U.S. Government (1790). The shoes also contain a limited collection of foreign patents and *non-patent literature*. The shoes are housed throughout the PTO's complex of offices in Crystal City, Virginia.

Single Terminal Access Facility (STAF) plan: This plan is moving PTO away from shared workstations toward desktop access. Now all PTO staff who need a PC have one, and virtually all of these PCs are hooked up to PTOnet.

Strategic Information Technology Plan (SITP): A yearly plan put out by the Office of the *Chief Information Officer* detailing the overall office automation strategy at the agency and projects underway and planned over a five year period.

Standard Generalized Markup Language (SGML): SGML was developed by the International Standards Organization (ISO) to allow users to easily pass documents through a variety of software applications and computers. This is possible because SGML is able to identify the informational content of a document separate from its style or media type, enabling data to be stored and accessed in multiple forms. Users can select information in very sophisticated ways and for multiple purposes, thereby reducing costs and allowing many publications to be produced from one data source. SGML uses a system of numeric codes which are split into recognizable elements, either text or sub-elements. These codes can easily be modified for use with many languages. There are no size constraints on documents written with SGML and they can be sent either electronically or in printed form. Within the next several years, patent offices worldwide -- including PTO -- will convert their patent publishing operations to SGML and issue and interchange patents as SGML-tagged documents. SGML will facilitate the creation of a full copy of a global patent in its original language and an abbreviated copy containing text elements that have been translated into English.

Structured Query Language (SQL): A popular computer language that serves as the basis of many current day *relational database management systems (RDBMS)*. SQL, sometimes pronounced "sequel", is known for its relative ease of learning and use--approximately 40 commands form the basis of the language, though users can perform useful operations with only a handful of basic commands--and for its "portability", i.e., the language is standardized and therefore users do not have to relearn the language to use it with a variety of *Database Management Systems*.

System Development and Maintenance (SDM) contractor: PTO is planning to acquire a System Development and Maintenance contractor to subsume the current *APS* contract, increasing the scope to provide PTO-wide support services. By the end of FY96, the current APS contractor and several other contractors will be replaced with a SDM contractor. This new contract will serve as PTO's primary source for automation support services. The contract will be used for all planning, analysis, design, development, enhancement, and maintenance of all PTO *AIS* and the supporting technical infrastructure. Computer center operations, network management, and office automation support will also be within the scope of this contract.

Supervisory patent examiner (SPE): A Supervisory Patent Examiner is a senior Primary *Patent Examiner* who has full supervisory responsibility for an *Art Unit*.

SUS: See *Shared Use Workstations*.

System recoverability: System recoverability is defined as the extent to which a system can recover work performed by a user just prior to a system outage, boot-off or lock-up.

System response time: System response time is the amount of time it takes *APS* to respond to a command or request.

Systems Acceptance Testing/Independent Verification and Validation (SAT/IV&V): The Systems Acceptance Testing/Independent Verification and Validation process comprises all functions required to test, integrate, and install software enhancements and/or modifications to the *APS* product environment. Each element of this activity is accomplished within the framework of a baseline concept. A baseline consists of a variable number of software capabilities to be acceptance tested, integrated, and installed within a specific time frame.

TAC: See *Trademark Assistance Center*.

Target search: Target search is a non-*Boolean search* alternative that can find the most relevant articles on a subject. *Dialog* uses this search form.

TCP/IP: See *Internet Protocol Suite*.

Text-based database: See *Database Management Systems (DBMS)*.

Text Search: One of the five major automated information systems that make up the *Automated Patent System*, the Text Search system allows examiners and public customers to search the full text of over 1.8 million U.S. patents issued since 1971 and the English translations of some 3.0 million *Japanese Patent Office* abstracts. This search tool was introduced to the examining corps in incremental phases beginning in 1986. An enhancement project to replace the current text search facility -- including hardware and software -- is scheduled for deployment in the period FY95-FY2000. The Text Search system's search strategy is based on *Boolean logic* structure.

Text terminal, shared, single screen: The single screen, shared text terminals are used by *Patent Examiners* to access the *Text Search* system. These text terminals are located, typically in groups of four, in search rooms on select floors of the PTO office buildings which house patent examiners.

Thesaurus/registry feature: A thesaurus/registry feature would allow examiners to pull up all related terms and spellings of a word during the search process. This tool is one of the features most widely desired by the examining corps.

Thomson & Thomson: A commercial information vendor that repurchases, repackages and resells Trademark information. See also *CorSearch, Imsmarq, Mead Data Central, NERAC*, *Trademark Research* and *commercial databases*.

TIS: See *Trademark Information System*.

Trademark Assistance Center (TAC): A division in the Trademark Office that responds to outside calls concerning application status.

Trademark Information System (TIS): The name for a new information system that will eventually replace *TRAM*.

Trademark Research: A commercial information vendor that repurchases, repackages and resells Trademark information. See also *CorSearch, Imsmarq, Mead Data Central, NERAC*, *Thomson & Thomson* and *commercial databases*.

Training: Training includes all instruction on how to access and use various PTO systems. In Patent, *Image Search* training is provided by PRC. *Text Search* and *commercial database* training is provided by the Patent Academy. *X-Search* and *TRAM* training in Trademark is organized on a group or unit basis.

Trademark Official Gazette (TMOG): The means by which approved trademarks are announced to the public.

Trademark Reporting and Monitoring System (TRAM): TRAM system is PTO's current system for tracking the location and status of a trademark application through the examination and other processes.

Trademark Trial and Appeal Board (TTAB): A review board within the Office of Trademark that is the first recourse of an applicant after a trademark claim has been rejected after examination by a Trademark examiner. If the TTAB also rejects the applicant's claim, an appeal can be made to the Federal Circuit Court of Appeals, which has the ultimate jurisdiction.

TRAMster: Specialized personnel in the Office of Trademark who are experts on *TRAM*.

Transportable Image Display Workstation (TIDW): A transportable image display workstation is any shared use image workstation which has been configured to be physically moved from the PTO site to any remote location and function to resemble an on-line device at the PTO. The TIDW may have a separate optical disk drive with sample images written on the disk, or the images may be written to a magnetic hard disc built into the TIDW to simulate an on-line image retrieval. The TIDW has a built-in modem which may be used to dial into *APS* for on-line access to *Text Search* and other APS system functions except image retrieval.

Unisys: The manufacturer of the A16 mainframe used by *PALM*, *TRAM*, *CRDA*, PASS Assignments System, Trademark Photocomposition System, and Attorney Roster System.

U.S. Patent Classification System: The U.S. Patent Classification System is a scheme for organizing patents into technical categories.

Walk-up printer: Walk-up printers have no search capabilities but can print out copies of whole patents. They are located throughout the offices which house patent examiners.

Wand: To operate a *bar code reader* by pointing the device at a bar code label to register the serial number of the label.

Web server: A computer *server* connected to the *World Wide Web*, the graphical portion of the *Internet*.

Web site: See the *Internet*.

The Web: See *Internet*.

Welch Allyn: Sole manufacturer of the *bar code readers* (BCRs) used in conjunction with the *PALM* and *TRAM* tracking systems. The types of BCRs used by PALM and TRAM are no longer being manufactured.

Westlaw: See *commercial databases*.

Wide area network (WAN): An interconnected network of computers that connect offices located in geographically dispersed areas. See also *local area network*.

WinCOM (for hard disk): Communications software, including *graphical user interfaces* (GUI) which allows Patent Examiners to operate *APS* in a more user-friendly, Windows-like environment.

WinNET (for the PTOnet): Communications software, including graphical user interfaces (GUI) which allows Patent Examiners to operate APS in a more user-friendly, Windows-like environment.

Workstation rooms: Workstation rooms house the shared use *cluster workstations* and *text terminals*, and are located throughout the offices which house patent examiners.

World Wide Web: See the *Internet*.

World Intellectual Property Organization (WIPO): The World Intellectual Property Organization is a specialized agency made up of 125 members of the United Nations. WIPO's objectives are to promote the protection of intellectual property throughout the world and to ensure administrative cooperation among the intellectual property unions. The headquarters for WIPO are in Geneva, Switzerland.

"x86" computer: Refers to the processing power of a *personal computer* according to the designations given by the Intel Corporation to its market dominating line of microcomputer chips. The current market standard is the "586" computer or more commonly, the *Pentium*.

Xerox Network System (XNS): Xerox Network System is the network protocol previously used in the PTO. It has been replaced by *TCP/IP* (Transmission Control Protocol/Internet Protocol).

QUANTITATIVE STUDIES: STRATEGIC AND METHODOLOGICAL CONSIDERATIONS

Quantitative measurement of end-user satisfaction is a central component of the Mathis customer evaluation methodology and is a bedrock component of the project at hand. The survey was designed to respond to several requirements:

First, the quantitative survey allowed the project team to verify and measure the impact of issues brought out in an *ad hoc* manner in focus groups and other interviews. Human nature being as it is, focus group comments cannot always be taken at face value as they may represent a limited or biased viewpoint, arising from a lack of broad understanding of all aspects of an issue or reflect the speakers' self-serving attempts to portray themselves in the most positive light. The survey provided a broad sampling of views across PTO that helps compensate for such potential distortions.

Second, the quantitative survey helped establish priorities among the variety of issues discussed in focus groups. The persuasiveness or aggressiveness of an individual focus group attendee may give a skewed impression of the issues that are most important. Some issues may play well in focus group sessions but may be minor in comparison with more complex issues that are hard to reduce into short sound bites. The focus group dynamics may result in attendees returning again and again to the same issues while overlooking or giving short shrift to others of significance. A quantitative survey enables us to present a variety of issues together to individual respondents, thereby allowing us to capture and aggregate personal views of importance and priority.

Third, the survey helped map out the impact of issues on various groups at PTO. In focus sessions, it was clear that diverse groups use office technology in varying ways and that concerns were not uniform. The elaboration of such patterns will help PTO assess the impact of information technology changes on various groups and job areas, thereby giving it the means to make more refined choices.

Fourth, the quantitative survey permitted broad participation of PTO staff in the change process, furthering the goals of consultation and inclusion. This participation is important for PTO (or any organization) in terms of employee morale and should help to ensure that systems modifications are more appropriate and enduring. In addition, assuming that findings are acted upon, this participation will eventually promote a sense of end-user ownership of PTO's information technology systems.

In summary, the forthcoming survey substantially enhanced M&A's ability to provide cogent recommendations to the PTO. In designing the survey, we kept in mind these benefits to get the greatest added value for our overall analysis.

Issues addressed in the quantitative survey

After conducting numerous focus groups, talking with managers and systems people and reading PTO's systems literature and reports, the M&A team had a good idea of the most critical issues. At the same time, however, experience shows that quantitative surveys usually yield some surprises when compared with focus groups results. The issue that everyone harped on most in one session is sometimes rated lower than another issue that was discussed only briefly. The actual ratings of issues are sometimes more positive or more negative than one might predict coming out of focus sessions. The survey provided a platform to voice focus group issues, while at the same time providing leeway for surprises or unexpected messages to emerge.

One illustrative area of surprise is the overall benefits of office technology. Focus groups quickly reverted to what is going wrong, but the survey provided a platform to express positive views where they exist. For example, the E-mail system has been a great boon to employees and a clear advantage over previous methods and appears to have contributed to effective intraoffice communications. The survey allowed M&A to quantify such benefits.

In querying end-users about office automation, the survey recognized the most important element that users bring to the analysis: their first-hand experiences with and opinions about the tools under discussion. The questionnaire, for the most part, adhered rather closely to questions regarding respondents' personal experiences and views, avoiding hypothetical or indirect avenues. The survey included five broad categories of information from the user: 1) the tools available to the end-user; 2) details on how users apply the tools at their disposal; 3) the users' assessments of the performance of the tools for their day-to-day duties; 4) the users' wish list of changes and additions that could be made to improve the usefulness of the tools; and 5) relevant user characteristics that may influence their responses to survey questions.

There are several levels at which information technology can be analyzed. Such systems involve a complex interaction among machines and people, tied together on a day-to-day basis by a written or unwritten set of rules (procedures) and guided in the long run by an overall strategy (management). This observation suggests that an information technology system can be analyzed at the following levels:

Hardware and software. This level is probably the most basic, though often it is mistakenly the driving factor. Some important questions are: Does technology successfully perform the functions for which it was intended? Does technology perform additional functions that are needed or desired? What would it cost and what would be the benefits of upgrading to a more advanced technology? Benefits at this level may include: the ability to store information in electronic format; the ability to reduce costs that accrue from such storage; the ability to retrieve and modify such information for

future use; and the ability to connect people and information in dispersed locations. Problems at this level may include slow hardware and software response time due to system limitations, slowdowns and data loss due to system usage exceeding capacity. Other challenges might include bottlenecks due to weak links in the electronic processing chain and the inability to access or modify data when software formats are incompatible.

The user. This level is the most directly amenable to end-user inquiry using survey methodology. Some important questions are: how do users use the technology (hardware and software) at their disposal? How important are the various technologies in performing their job duties? How satisfied are they with the performance of various tools? What changes would improve the usefulness of the tools? Benefits in this area may include the ability to perform certain job functions more quickly, to produce higher quality products and to gain job satisfaction from access to effective tools. Problems may include poor user habits that lead to system breakdowns and lack of sufficient knowledge of the tools to take full advantage of their capabilities.

Administration. This level involves procedures that are known to the user that dictate day-to-day system operations. Some important questions are: What are the procedures that users are expected to follow in using the systems? How are these procedures communicated to users? To what extent do users follow procedures? How effective are procedures in achieving their intended goals? Benefits in this area include reduction in problems caused by improper system usage and ability to maintain the system over time. Problems in this area may include lack of clarity about procedures, failure to communicate procedures effectively, improper procedures in relation to intended goals and rigid procedures that do not account for changes over time.

Management. This level is the most elusive and the most difficult to measure. It may involve decisions about strategy or overall direction that are subjective in nature and influenced by inter- and intra-office conflicts. Some important questions are: How was the system designed to address the organization's overarching goals? Does the system succeed in addressing user needs? What is the expected life of the system and what happens when it reaches the end of its useful existence? How does the organization integrate user, machine and procedures to its optimal gain? Benefits in the area may include systems design that enhances organizational productivity and systems management that keeps it current and responsive to changes in processes. Problems in this area may result from not adequately taking user needs into account during the design phase, not including plans for system expansion, contraction or modification as user needs change and failure to effectively integrate the various aspects of information systems for optimal performance of the organization's mission.

These categorizations of the main issue areas of analysis provided is the coherent framework for analyzing PTO's information systems. This framework

differentiates the base origin we used of problems as arising from failures in the technology itself, the user, procedures serving to link technology and users or in strategic management oversight for system optimization. Establishing a priority among these overarching areas of analysis has helped us create actionable recommendations that address issues in a staged manner. Clearly problems at all four levels will eventually need to be addressed. However, it is helpful to suggest courses of action that can be implemented in stages rather than through potentially disruptive, complete overhauls of the systems altogether.

Design of the survey

The survey design recognized that not all of the issues brought out in the pre-survey investigation are amenable to direct end-user inquiry. Management concerns, technical system details and procedural issues may be known to only a handful of end-users, if any, and only in a distorted and biased way. These issues are addressed in the survey only by framing the question around the way in which a particular concern affects the end-user or by inferring conclusions from end-user data. As mentioned previously, the survey was designed to relate directly to end-user experiences, but at the same time we were cognizant of how end-user information relates to higher levels of analysis.

Recent focus groups suggest that procedural and management concerns are at least as high a priority as purely technological issues, e.g., inadequate hardware and software, and contribute to deficient user capabilities. Our survey design took this into account, along with the related fact that talking to end-users gives us the means to demonstrate where poor management or procedures result in user level problems, but does not directly give us solutions. Talking to end-users, however, gives us a good understanding of how they use technology to perform their jobs and how technology could better serve them, thereby providing a base of data for future systems design.

There were three large issues in the design of the survey. The first was choosing between census and sampling approaches to building the survey sample. The second was defining the sample population as it relates to PTO staff. The third was how to structure the instrument to address the various systems that we are evaluating.

Census versus sampling methodology

Survey methodology typically makes a major distinction between a sample (a carefully selected representative subset of the population of interest) and a census (the entire population of interest) approach. The following summarizes the major advantages and disadvantages of each approach.

Census technique	
Advantages	**Disadvantages**
! At high rates of participation, is likely to be the more accurate method	! More costly to implement since the number of participants is apt to be higher
! Researcher bias in selecting sample is minimized	! May be less representative, if self selection takes place, i.e., non-participants are different from participants
! Approach is inclusive	
! Larger numbers of respondents allow more sophisticated analysis of subgroups of a diverse population	
Sampling technique	
Advantages	**Disadvantages**
! Less costly since the number of participants is apt to be lower	! Researchers' judgments concerning which subgroups to include can introduce biases
! Can be the more representative approach if careful sampling techniques ensure the inclusion of reluctant or hard to reach participants and the representation of important subgroups	! May provide insufficient numbers for sophisticated analysis of subgroups

Outside of the traditional costs and benefits, the PTO study had special characteristics. The first was that a broad spectrum of PTO employees participated in focus groups and as such expectations may have been high concerning end-user input into the process. It was natural to invite all or nearly all to participate or face charges of lack of consultation and inclusion. Secondly, relatively high participation rates could be achieved -- given adequate management support -- since users have a heavy personal stake in the system that will result from this review process. Without using coercive measures which would have biased responses, PTO and M&A presented the survey as an opportunity and a duty of PTO staff and provided time compensation for those filling it out in an auditorium setting. Third, the proliferation of groups and subgroups with special characteristics and needs was apparent in focus groups. Sampling design would have been time consuming and may have missed some important viewpoints.

Finally, the survey will provide a valuable data set for future reference for a variety of purposes. A census methodology that provides larger sample across a wide spectrum of PTO job functions may will provide a more robust data set that can be reused and reanalyzed from viewpoints that may vary somewhat from the focus of the current study and that may hone in on small subgroups not of special interest to our broader study.

Population definition

The choice of a census methodology did not eliminate the need to define the survey population. Our focus in the study has been on information technology "end-users". The critical issue was to define end-users in practice. Were all PTO employees end-users or should some groups naturally be weeded out?

Nearly all employees of PTO have on occasion some interaction with office automation tools. However, some employees, such as maintenance staff, may have such a superficial interaction that they were not be relevant to our study. In addition, some groups, such as the CIO and SIR, may not be appropriate since they are designers and supporters of the information technology systems rather than end-users.

In the end, however, since the PTO is an information agency and nearly all of its staff are white collar workers in both primary production and support units, it was decided that there was not much too be gained from a selective weaning of the target. Questions were framed so that respondents had to answer only those that were relevant to them. Functional job areas were defined so that survey results can be cross tabulated to focus on various groups of interest. SIR and the CIO, as large group with diverse functions, were included for the same reasons. In effect, some staff in these units are systems designers, but nearly all are users as well, some exclusively others in conjunction with their design role.

Structure of the survey

Given information gleaned from focus groups it is clear that information technology tools are used by different employees in different ways. Some tools will be totally irrelevant to some users and vital to others. How then did we ensure that respondents answer only questions about systems that are relevant to their work? There is nothing worse than respondents going through numerous questions that they do not understand or find totally irrelevant to their experiences.

For the PTO study, the options concerning the structure of the survey instrument were to construct a single instrument that encompasses all relevant tools at the disposal of individual employees or to handle stand alone systems such as TRAM and X-Search with separate survey instruments. There were valid arguments for both points of view. For one, clearly some tools are only be used by a subset of PTO

employees. Within the agency, TRAM and X-Search are used exclusively by Trademark employees, for example, as far as we know. X-Search is used almost exclusively by Trademark examiners. Will the responses of light users dilute the focus of the issues raised? In addition, will inclusion of all tools in a single survey create an excessively long, unwieldy instrument, thereby reducing response rates and thoughtfulness and limiting the ability to probe deeply on specific tools?

Separate surveys for each tool, however, forces survey designers to make decisions concerning who gets what instrument. These decisions may inadvertently add biases to the analysis. For example, while we initially perceived TRAM as a vital component of a Trademark attorney's day, it turned out that TRAM is used more to *credit* attorneys for their production rather than for *actual* production. X-Search was more central to their intellectual output. In contrast, clerical workers had a more intimate knowledge of TRAM. Though focus groups allowed us to observe this potential misunderstanding there may be others we may not have observed.

An integrated survey provided the opportunity to create an effective inventory of information technology usage, something that has apparently never been done before in a comprehensive manner. This inventory was immensely useful to analysis and could serve future PTO management needs. A more comprehensive survey (querying each employee about all of information tools that they use) avoids the pitfall of skipping important information that could be the result of separating systems and predefining narrow target respondents for each system. Skip patterns were designed so that respondents were able to jump over questions regarding systems they do not use. In this manner, completion of the survey was not prolonged by irrelevant questioning.

The content of the quantitative survey

Initially, a user profile developed a broad matrix of the nature and extent of the user's interaction with all major information tools on a day to day basis. This matrix included:

- Indicator of whether the respondent uses a particular automation tool.
- A measure of the extent of usage of each tool.
- Length of usage of the tool
- Expertise on the tool
- Training on the tool
- Satisfaction with the tools functionalities
- Satisfaction with data contained in PTO proprietary databases

The "map" served several important functions: 1) it qualified the user for subsequent questions; 2) it allowed sophisticated analysis of system use and satisfaction, taking into account user expertise, training and extent of use; 3) it provided

important data for measuring office automation costs and benefits; and 4) it provided a historic record for PTO that can serve as a benchmark for future systems design and development.

Issues that arose in focus groups were summarized and analyzed, but despite the almost encyclopedic amount of information, sometimes M&A could not clearly discern the *priority* among the issues. Effective or perhaps high-ranking speakers caused issues appear to be larger than life and ineffective speakers caused others to be dismissed. Problems that generated funny anecdotes got much attention, whereas more complex concerns got a short shrift. Focus group participants smothered issues that threw their own effectiveness into a bad light. All of these phenomena required that the survey help M&A sort out priorities among the many issues brought up.

Methodology

Beginning in May 1995, M&A conducted a series of meetings with PTO management to discuss their views on PTO's information systems and to learn whether they believed the systems were meeting user needs. All managers who participated in these sessions were system users and some had been involved in systems development, design or implementation. The managers were asked to respond to questions that encompassed such issues as system feature functionality; performance; technical support and maintenance; and training and documentation.

Conduct of interviews and focus groups

Following these manager meetings, M&A conducted a series of focus groups with randomly selected users. These sessions were designed to create an impartial forum for learning how automation tools are used in the patent and trademark business and the extent to which users are satisfied with them in terms of meeting their daily work needs. At the beginning of each session, M&A explained the project and stressed its objectives. Participants were asked to frame their discussion around three basic lines of inquiry:

- What about the system is working well?
- What about the system needs to be improved?
- What about the system would you change if you could?

The qualitative information-gathering methods (interviews and focus groups) were rich and invaluable, but a quantitative survey was necessary to produce scaleable and projectable results. An early 1996 survey tested the accuracy of critical issues and viewpoints raised through many hours talking with an informed and reasonably representative cross-section of users and systems managers.

Development of the survey instrument

At the conclusion of the series of focus groups, a survey instrument was developed that reflected -- to a large extent -- the knowledge Mathis had gained to that point concerning the critical issues that impacted end-users as they used the office automation tools at their disposal. The survey instrument was developed with the following objectives in mind:

- To frame the instrument around the most critical issues of concern to end-users so that we could quantify and compare their assessment of the factors that impact the effectiveness of the office automation tools at their disposal.

- To provide broad coverage of all of the information tools at the disposal of end-users while providing a consistent framework for looking at them so that results for different systems could be directly compared.

- To frame the instrument in such a way that any PTO staff member could quickly complete the survey, answering the questions concerning systems of most relevance to them while skipping over those that did not relate to their work.

- To provide opportunities to cross-tabulate survey data with significant demographic characteristics, critically, the office of the respondent and their job functions but also more subjective factors such as their level of computer expertise.

Focus group findings were delivered to PTO senior management in September 1995. Mathis & Associates developed the original survey instrument in early October 1995. The instrument was first pre-tested on October 20, 1995 with one person each from Patents and Trademarks who was considered especially knowledgeable about office automation systems in the agency. Then the instrument was tested with a group of Trademark end-users on October 23. In all instances, survey pre-testers commented on the content and structure of the instrument. These comments were taken into consideration in subsequent versions of the questionnaire.

Due to the late addition of PALM to the study and the holiday hiatus, the survey instrument was not finalized until early February. A supplemental PALM questionnaire was added to reflect information that had come out of PALM focus groups in December. A camera-ready version of the questionnaire was delivered to the PTO on February 5, 1996.

The final survey product contained 42 questions and 623 data elements, divided into the following sections:

Section I: **Computer Hardware Assessment** - Satisfaction with and performance of various aspects of the computer hardware (PCs, printers and peripherals) available to staff at PTO.

Section II: **PTOnet Assessment** - Satisfaction with various aspects of the performance of PTOnet.

Section III: **Software/ Applications Assessment** - Satisfaction with various aspects of software systems available to end users.

Section IV: **Tracking and Search Systems Assessment** - Satisfaction with various aspects of the information databases used by PTO staff.

Section V: **Help Desk/Support Assessment** - Satisfaction with the PTO Help Desk and other support for computer applications and office automation tools.

Section VI: **General Automation Policy Assessment** - Satisfaction with the overall direction that office automation is taking at the PTO, including ratings of the estimated impact on job performance of certain enhancements or changes to current systems.

Section VII: **Demographics** - Demographic information on the professional and personal characteristics of respondents

Section VIII: **Comments** - Elaboration on any of the responses to the questions in the survey

Section IX: **PALM Supplemental Questionnaire** - Estimation of the impact of enhancements or changes to the PALM system.

Selection and design of the sample

The survey process was conducted in two phases: a controlled survey administration and a mail-in survey. All members of the PTO staff were provided with an opportunity to participate in the study through one of these two means. The Assistant Secretary of Commerce and Commissioner of Patents and Trademarks, Bruce A. Lehman, sent a letter to all staff in March 1996 encouraging their active participation in the survey process.

Fielding of the survey

A random sample of 450 staff -- representing all PTO offices -- was developed to participate in several auditorium survey administration sessions on March 5, 1996 at Patents and March 7, 1996 at Trademarks. A random sorting of PTO staff by office and job category was generated by PTO's Center for Quality Services using Excel software and a full PTO staff list of 5,093 employees. To get a final sample of 450 staff spread throughout PTO offices and agencies and of various job functions, target numbers were established for the various offices and job categories. Mathis & Associates called PTO staff randomly within target groups to invite them to participate in the auditorium sessions until the target number of confirmed attendees for each group was reached. Mathis kept track of confirmed attendees for verification purposes as confirmed attendees were sent a reminder E-mail message the day prior to their survey session. In all, 550 confirmed attendees were targeted in order to get a sample of approximately 450 staff. The confirmed attendees were allocated as follows among the offices: Patents, 364; Trademarks, 110; and other offices, 76. The Trademark allocation was somewhat higher than their proportional representation within the PTO as a whole to help ensure adequate number for analysis of Trademark specific systems.

Four hundred twenty-seven (427) PTO staff members participated in the March 5th and 7th sessions. The Patent and other offices sessions were held at the Patent Academy on March 5 during three time periods, 9:00 a.m., 10:30 and 2:00 p.m. The Trademark sessions were held at the Alexandria Room of the Trademark Building on March 7 during two time periods, 9:00 a.m. and 10:30 a.m. Staff were given approximately one hour to complete the survey. Surveys were collected by Mathis & Associates and transported directly to their office for data entry.

During March 11-12, 1996 the Center for Quality Services distributed the survey to all PTO staff via interoffice mail. A letter from PTO Commissioner Bruce Lehman accompanied the survey and encouraged staff to complete and return the survey. Staff were provided a postage-paid envelope addressed to Mathis & Associates. April 5th was established as the cutoff date for surveys to be included in the analysis of the results.

On March 27, 1996, PTO's Center for Quality Services learned that the entire Trademark survey distribution was still waiting in the Trademark mailroom. These surveys were not finally distributed until March 29, 1996. Given the short time frame for Trademark respondent survey completion versus the original deadline, Mathis and PTO jointly decided to move back the deadline for receiving surveys by one week, to April 12, 1996.

Though the slow Trademark distribution may have hurt their response rate to some extent, an analysis of completed surveys showed that response rates were not substantially different among the three major office groupings. This analysis is summarized in the chart below:

	All	Patent	Trademark	Central
Total employees	5093	3659	438	996
Auditorium invitees	550	364	110	76
Auditorium attendees	427	264	84	49
Auditorium %	78%	73%	76%	64%
Mail potential	4666	3395	354	947
Mail actual	685	459	41	139
Mail %	15%	14%	12%	15%

*Note that some survey respondents did not indicate an office. Therefore, the sum of the three office figures does not equal the "All" column.

The 12% to 15% response rate for mail-in survey respondents resulted in a minimally acceptable total sample size from Trademarks.

Preparation of the data

A total of 427 usable questionnaires were returned from the March 1996 administration. A total of 685 usable questionnaires were returned from the mail-in process for a response rate of 14.7%. The total overall response rate from both the general session and the mail-in survey was 21.8% of Patent staff. Responses were data entered, verified and edited by Mathis Survey Group according to Mathis & Associates' specifications.

Analysis of the data

The survey design and preliminary analysis of responses provided the basis of analysis of the data. The statistical analysis in this study used cross-tabulations.

Confidentiality and anonymity of participants

The confidentiality and anonymity of respondents were preserved throughout the conduct of the study. Names of participants in the March 1996 sessions were randomly selected by computer and subsequently destroyed. Participants were requested not to put their names on the survey and no identifying numbers or codes were placed on the survey that could be traced to individual participants.

Scoring of the statistical responses

Respondents were asked to rate their satisfaction with various elements of the office automation tools at the PTO using the following scale:

1 = Not at all satisfied
2 = Not very satisfied
3 = Generally satisfied
4 = Very satisfied
5 = Completely satisfied
N/A = Not sure/doesn't apply

In other sections, respondents were asked to indicate frequency of use or estimate the impact of feature enhancements or changes if they were made to various systems.

In reporting statistical scores, responses were grouped into two clusters. Responses in the 3, 4 and 5 categories were aggregated to report an overall "acceptance" score -- reflecting the fact that the remainder of respondents expressed some level of dissatisfaction with a given element. In writing the report, general "acceptability" is also sometimes reported as general satisfaction -- again because the rating excludes all dissatisfied respondents. Responses in the 1 and 2 categories were aggregated to report an overall dissatisfaction score.

Reliability of the data

A total of 1112 completed surveys were returned prior to the April 12, 1996 cut-off date from a total PTO staff of 5093. This response level produced a ±2.6 error rate at the 95% confidence level. For Patents, the error rate was 3.3%, for Trademarks 7.4% and for other offices 6.4%.

Other factors in interpreting the data

In reviewing the statistical data in this report, there are two issues which should be kept in mind. First, when adding the percentages of responses to any given question, it is possible that the total will equal just below or just above 100%. Statistical software packages used to analyze data routinely round off each individual response to the nearest whole number.

In addition, some other factors must be considered in the analysis of sample statistics. Generally, all survey statistics are measured against a base of "respondents", which excludes those who marked "not applicable" or did not mark anything at all for a particular question.

Multiple choice questions are handled essentially following the same principle, however, the "respondent" base is considered to be all those who indicated a "yes" response for at least one element of the multiple choice. The multiple choice questions handled in this manner are questions 3, the middle two parts of question 16, and questions 27 and 36.

The "respondent" base for the first part of question 16 was considered to be systems users, as derived from the first part of question 15. Systems usage (first part, question 15) was considered to determine the relevance of training (first part, question 16). This question was unique in this respect since due to the presentation of all systems in a table format for this question, respondents entered "no" for all systems on which they were not trained, regardless of whether that system had any relevance to their work. This was unavoidable due to the formatting requirements of the questionnaire and the need to cover all systems, however, the adjustment just described effectively eliminates this distortion and provides meaningful statistics.

With the exception of multiple choice questions, percentages of responses will sum to 100%. Multiple choice responses may sum to more than 100%.

Note that though the total number of responses in each office and job function category are provided on the top of each page, the base for each individual question may be smaller due to non-responses. In addition, the number of respondents in each office and job function do not necessarily equal the total numbers for the survey as a whole or the totals for each office. Some respondents did not identify the office to which they belonged nor their job function.

APPENDICES

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
1. Which best describes your situation regarding a PC on or near your desktop for your own personal use?																						
- Don't have or use a PC	2.5%	3.4%	0.2%	28.8%	9.1%	0.0%	3.2%	0.0%	3.3%	0.0%	15.8%	8.3%	0.0%	0.0%	0.0%							
- Share PC(s) with others	2.2%	2.7%	0.0%	22.0%	9.1%	0.0%	0.0%	0.9%	2.5%	0.0%	15.8%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	11.1%	1.4%	0.0%	0.0%	0.0%
- Have one PTO supplied PC	84.5%	84.6%	93.5%	39.0%	63.6%	96.8%	87.1%	80.6%	90.2%	98.6%	68.4%	75.0%	100.0%	80.0%	90.0%	81.1%	100.0%	55.6%	76.4%	66.7%	82.1%	88.4%
- own PC (one)	1.4%	0.8%	0.9%	0.0%	1.8%	0.0%	0.0%	0.9%	0.8%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	1.6%	0.0%	11.1%	1.4%	0.0%	0.0%	1.4%
- Have two or more PTO PCs	7.3%	5.2%	1.9%	8.5%	14.5%	0.0%	9.7%	12.0%	3.3%	1.4%	0.0%	8.3%	0.0%	20.0%	10.0%	16.2%	0.0%	22.2%	20.8%	33.3%	17.9%	10.1%
- own PC (more than one)	2.2%	3.4%	3.5%	1.7%	1.8%	3.2%	0.0%	5.6%														
2. What kind of PC is your primary PC?																						
not sure	15.9%	14.7%	9.5%	66.7%	23.6%	6.5%	6.5%	6.5%	29.8%	29.0%	57.1%	16.7%	42.9%	0.0%	0.0%	6.5%	25.0%	33.3%	4.2%	0.0%	3.6%	5.7%
- 286	1.3%	1.7%	1.9%	5.0%	0.0%	0.0%	0.0%	0.9%														
- 386	35.3%	50.3%	67.0%	11.7%	12.7%	12.9%	3.2%	48.6%	5.6%	1.4%	9.5%	8.3%	14.3%	20.0%	10.0%	5.4%	0.0%	11.1%	8.3%	0.0%	7.1%	1.4%
- 486	38.1%	28.6%	17.7%	16.7%	60.0%	80.6%	74.2%	34.6%	62.9%	69.6%	28.6%	75.0%	42.9%	80.0%	80.0%	57.5%	75.0%	33.3%	48.6%	66.7%	50.0%	71.4%
- Pentium	8.0%	3.8%	3.0%	0.0%	3.6%	0.0%	12.9%	7.5%	1.6%	0.0%	4.8%	0.0%	0.0%	0.0%	10.0%	26.3%	0.0%	11.1%	31.9%	33.3%	35.7%	20.0%
- Macintosh	1.4%	1.0%	0.9%	0.0%	0.0%	0.0%	3.2%	1.9%								4.3%	0.0%	11.1%	6.9%	0.0%	3.6%	1.4%
3A. Does your primary PC have an internal modem?																						
- yes	30.4%	22.5%	18.3%	12.8%	18.8%	37.9%	52.0%	33.7%	14.9%	7.1%	26.7%	20.0%	33.3%	20.0%	25.0%	60.5%	50.0%	44.4%	54.9%	0.0%	72.4%	68.7%
- no	69.6%	77.5%	81.7%	87.2%	81.3%	62.1%	48.0%	66.3%	85.1%	92.9%	73.3%	80.0%	66.7%	80.0%	75.0%	39.5%	50.0%	55.6%	45.1%	100.0%	27.6%	31.3%
3B. Does your primary PC have an external modem?																						
- yes	13.8%	12.7%	11.7%	2.6%	14.6%	7.1%	26.9%	18.0%	7.9%	5.4%	0.0%	10.0%	16.7%	20.0%	25.0%	17.8%	33.3%	28.6%	22.4%	0.0%	10.3%	18.8%
- no	86.2%	87.3%	88.3%	97.4%	85.4%	92.9%	73.1%	82.0%	92.1%	94.6%	100.0%	90.0%	83.3%	80.0%	75.0%	82.2%	66.7%	71.4%	77.6%	100.0%	89.7%	81.3%
3D. Are you unsure whether your primary PC has a modem?																						
- yes	15.2%	16.3%	13.3%	46.2%	24.5%	24.1%	8.3%	12.6%	24.8%	23.2%	53.3%	10.0%	0.0%	20.0%	25.0%	7.0%	0.0%	42.9%	9.1%	66.7%	3.4%	1.6%
- no	84.8%	83.7%	86.7%	53.8%	75.5%	75.9%	91.7%	87.4%	75.2%	76.8%	46.7%	90.0%	100.0%	80.0%	75.0%	93.0%	100.0%	57.1%	90.9%	33.3%	96.6%	98.4%
4. How much time do you spend using your PC on an average day?																						
- no time at all	1.9%	2.2%	1.4%	12.8%	2.0%	0.0%	0.0%	2.8%	2.6%	1.5%	11.8%	0.0%	0.0%	0.0%	0.0%							
- less than 2 hours	13.1%	15.1%	13.1%	25.6%	15.7%	36.7%	16.7%	12.0%	10.3%	1.5%	58.8%	9.1%	0.0%	0.0%	0.0%	6.5%	25.0%	11.1%	2.8%	66.7%	7.1%	5.8%
- 2 to 4 hours	31.0%	36.1%	37.3%	33.3%	21.6%	50.0%	46.7%	32.4%	20.7%	16.7%	17.6%	18.2%	57.1%	40.0%	20.0%	21.6%	0.0%	22.2%	18.1%	0.0%	25.0%	26.1%
- 4 hours or more	54.0%	46.6%	48.1%	28.2%	60.8%	13.3%	36.7%	52.8%	66.4%	80.3%	11.8%	72.7%	42.9%	60.0%	80.0%	71.9%	75.0%	66.7%	79.2%	33.3%	67.9%	68.1%
5. How would you rate the adequacy of your primary PC?																						
- inadequate	22.3%	25.0%	28.3%	16.2%	7.7%	23.3%	6.9%	28.7%	17.2%	21.2%	17.6%	9.1%	0.0%	0.0%	20.0%	13.7%	25.0%	25.0%	15.3%	33.3%	10.7%	10.3%
- adequate	77.7%	75.0%	71.7%	83.8%	92.3%	76.7%	93.1%	71.3%	82.8%	78.8%	82.4%	90.9%	100.0%	100.0%	80.0%	86.3%	75.0%	75.0%	84.7%	66.7%	89.3%	89.7%
6. How satisfied are you with the overall operability of your PC?																						
- dissatisfied	14.5%	16.8%	19.9%	21.1%	5.9%	9.7%	6.7%	13.1%	7.7%	6.0%	17.6%	9.1%	0.0%	0.0%	10.0%	9.7%	0.0%	22.2%	9.7%	0.0%	3.6%	11.6%
- satisfied	85.5%	83.2%	80.1%	78.9%	94.1%	90.3%	93.3%	86.9%	92.3%	94.0%	82.4%	90.9%	100.0%	100.0%	90.0%	90.3%	100.0%	77.8%	90.3%	100.0%	96.4%	88.4%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
7. Is your primary PC linked to network printers via PTOnet?																						
- yes linked	72.0%	69.9%	74.6%	44.4%	52.9%	58.1%	56.7%	75.0%	89.0%	94.0%	77.8%	90.9%	85.7%	80.0%	80.0%	73.9%	50.0%	55.6%	84.7%	66.7%	67.9%	69.1%
- no, not linked	21.9%	23.9%	21.1%	33.3%	33.3%	29.0%	40.0%	21.3%	8.5%	6.0%	11.1%	9.1%	14.3%	0.0%	20.0%	21.2%	25.0%	44.4%	15.3%	33.3%	32.1%	19.1%
- not sure	6.1%	6.2%	4.2%	22.2%	13.7%	12.9%	3.3%	3.7%	2.5%	0.0%	11.1%	0.0%	0.0%	20.0%	0.0%	4.9%	25.0%	0.0%	0.0%	0.0%	0.0%	11.8%
8. Do you have your own personal non-network printer connected to your PC?																						
- not sure	6.6%	7.3%	2.6%	48.3%	17.9%	0.0%	3.2%	1.9%	11.3%	8.7%	28.6%	16.7%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
- no non-network printer	25.0%	11.2%	5.6%	25.9%	33.9%	9.7%	12.9%	13.9%	71.0%	81.2%	71.4%	58.3%	71.4%	60.0%	20.0%	42.5%	25.0%	44.4%	54.2%	66.7%	28.6%	35.7%
- non-network dot matrix	1.0%	0.6%	0.7%	1.7%	0.0%	0.0%	0.0%	0.0%								3.2%	50.0%	11.1%	2.8%	0.0%	0.0%	1.4%
- non-network inkjet	8.2%	7.0%	5.8%	6.9%	1.8%	16.1%	12.9%	10.2%	0.8%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	14.5%	25.0%	11.1%	8.3%	33.3%	7.1%	22.9%
- non-network laser	56.9%	71.2%	81.8%	17.2%	46.4%	74.2%	67.7%	71.3%	16.1%	8.7%	0.0%	25.0%	28.6%	40.0%	70.0%	38.2%	0.0%	22.2%	33.3%	0.0%	64.3%	38.6%
- non-network unspecified	2.3%	2.7%	3.5%	0.0%	0.0%	0.0%	3.2%	2.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	1.1%	0.0%	11.1%	1.4%	0.0%	0.0%	0.0%
9. How would you describe your level of usage of non-network printers during the past three months?																						
- zero	6.4%	3.9%	2.5%	20.0%	11.8%	3.4%	7.4%	2.1%	32.6%	47.1%	50.0%	20.0%	33.3%	0.0%	0.0%	7.6%	0.0%	14.3%	10.5%	0.0%	5.0%	6.0%
- light-very light	11.7%	11.4%	8.7%	28.0%	14.7%	0.0%	11.1%	21.1%	7.0%	0.0%	37.5%	0.0%	0.0%	0.0%	0.0%	14.3%	66.7%	42.9%	13.2%	0.0%	10.0%	10.0%
- medium-heavy	81.9%	84.7%	88.8%	52.0%	73.5%	96.6%	81.5%	76.8%	60.5%	52.9%	12.5%	80.0%	66.7%	100.0%	100.0%	78.2%	33.3%	42.9%	76.3%	100.0%	85.0%	84.0%
10. How would you rate the overall adequacy of your non-network printer?																						
- inadequate	7.9%	6.5%	6.0%	16.0%	6.3%	3.4%	0.0%	8.7%	14.7%	11.1%	28.6%	0.0%	33.3%	0.0%	12.5%	11.5%	0.0%	28.6%	11.8%	0.0%	10.0%	10.4%
- adequate	92.1%	93.5%	94.0%	84.0%	93.8%	96.6%	100.0%	91.3%	85.3%	88.9%	71.4%	100.0%	66.7%	100.0%	87.5%	88.5%	100.0%	71.4%	88.2%	100.0%	90.0%	89.6%
11a. The accessibility of network and non-network printers that you need for your work																						
- dissatisfied	9.7%	4.6%	3.1%	12.5%	8.5%	3.2%	3.3%	7.5%	28.6%	37.7%	23.5%	9.1%	0.0%	20.0%	20.0%	12.4%	25.0%	33.3%	11.3%	0.0%	3.6%	14.3%
- satisfied	90.3%	95.4%	96.9%	87.5%	91.5%	96.8%	96.7%	92.5%	71.4%	62.3%	76.5%	90.9%	100.0%	80.0%	80.0%	87.6%	75.0%	66.7%	88.7%	100.0%	96.4%	85.7%
11b. The operability and physical condition of the printers that you need for your work																						
- dissatisfied	10.6%	8.2%	6.6%	18.8%	15.2%	3.2%	6.7%	10.3%	23.5%	30.4%	17.6%	18.2%	14.3%	0.0%	10.0%	10.3%	0.0%	11.1%	14.1%	33.3%	3.6%	8.7%
- satisfied	89.4%	91.8%	93.4%	81.3%	84.8%	96.8%	93.3%	89.7%	76.5%	69.6%	82.4%	81.8%	85.7%	100.0%	90.0%	89.7%	100.0%	88.9%	85.9%	66.7%	96.4%	91.3%
11c. The day to day maintenance of printers that you need for your work																						
- dissatisfied	15.5%	13.2%	15.3%	12.9%	6.5%	10.3%	7.1%	11.1%	32.8%	50.0%	6.3%	18.2%	14.3%	0.0%	0.0%	10.3%	25.0%	0.0%	10.6%	33.3%	4.2%	11.8%
- satisfied	84.5%	86.8%	84.7%	87.1%	93.5%	89.7%	92.9%	88.9%	67.2%	50.0%	93.8%	81.8%	85.7%	100.0%	100.0%	89.7%	75.0%	100.0%	89.4%	66.7%	95.8%	88.2%
11d. Your access to other computer equipment that you may need for your work																						
- dissatisfied	30.4%	32.1%	35.5%	32.3%	15.9%	34.6%	8.3%	32.3%	36.9%	50.8%	25.0%	18.2%	14.3%	0.0%	12.5%	21.0%	0.0%	12.5%	25.0%	33.3%	11.5%	22.2%
- satisfied	69.6%	67.9%	64.5%	67.7%	84.1%	65.4%	91.7%	67.7%	63.1%	49.2%	75.0%	81.8%	85.7%	100.0%	87.5%	79.0%	100.0%	87.5%	75.0%	66.7%	88.5%	77.8%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
11e. The speed with which you receive computer equipment you have requested or ordered																						
- dissatisfied	44.7%	47.4%	53.2%	35.0%	23.3%	47.6%	50.0%	44.6%	49.4%	57.1%	30.0%	60.0%	28.6%	33.3%	42.9%	33.1%	0.0%	28.6%	38.6%	33.3%	28.0%	32.7%
- satisfied	55.3%	52.6%	46.8%	65.0%	76.7%	52.4%	50.0%	55.4%	50.6%	42.9%	70.0%	40.0%	71.4%	66.7%	57.1%	66.9%	100.0%	71.4%	61.4%	66.7%	72.0%	67.3%
11f. The speed with which your computer equipment is reinstalled after a move																						
- dissatisfied	19.1%	14.3%	15.0%	12.5%	15.6%	17.9%	4.8%	13.4%	36.7%	42.1%	33.3%	50.0%	28.6%	50.0%	0.0%	19.6%	0.0%	14.3%	25.9%	0.0%	14.3%	17.4%
- satisfied	80.9%	85.7%	85.0%	87.5%	84.4%	82.1%	95.2%	86.6%	63.3%	57.9%	66.7%	50.0%	71.4%	50.0%	100.0%	80.4%	100.0%	85.7%	74.1%	100.0%	85.7%	82.6%
12. Is your primary PC hooked up to the PTOnet?																						
- yes	95.8%	95.0%	97.9%	75.0%	84.8%	100.0%	96.2%	92.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	96.1%	100.0%	71.4%	97.1%	100.0%	92.9%	98.5%
- no	4.2%	5.0%	2.1%	25.0%	15.2%	0.0%	3.8%	7.4%								3.9%	0.0%	28.6%	2.9%	0.0%	7.1%	1.5%
13a. Availability of PTOnet (freedom from outages and downtime)?																						
- dissatisfied	17.6%	18.0%	19.7%	13.0%	5.3%	12.9%	20.7%	18.0%	17.8%	20.6%	17.6%	0.0%	14.3%	20.0%	20.0%	18.5%	0.0%	28.6%	17.4%	33.3%	18.5%	19.1%
- satisfied	82.4%	82.0%	80.3%	87.0%	94.7%	87.1%	79.3%	82.0%	82.2%	79.4%	82.4%	100.0%	85.7%	80.0%	80.0%	81.5%	100.0%	71.4%	82.6%	66.7%	81.5%	80.9%
13b. The speed of applications on PTOnet?																						
- dissatisfied	44.9%	45.6%	51.5%	4.3%	18.4%	35.5%	20.7%	51.5%	43.1%	46.3%	18.8%	45.5%	42.9%	40.0%	60.0%	44.4%	25.0%	28.6%	47.1%	0.0%	42.3%	47.1%
- satisfied	55.1%	54.4%	48.5%	95.7%	81.6%	64.5%	79.3%	48.5%	56.9%	53.7%	81.3%	54.5%	57.1%	60.0%	40.0%	55.6%	75.0%	71.4%	52.9%	100.0%	57.7%	52.9%
13c. The availability of applications on PTOnet																						
- dissatisfied	17.0%	17.6%	19.9%	8.7%	10.8%	19.4%	0.0%	17.3%	12.4%	17.9%	6.7%	0.0%	14.3%	0.0%	0.0%	15.9%	25.0%	28.6%	17.6%	0.0%	14.8%	13.4%
- satisfied	83.0%	82.4%	80.1%	91.3%	89.2%	80.6%	100.0%	82.7%	87.6%	82.1%	93.3%	100.0%	85.7%	100.0%	100.0%	84.1%	75.0%	71.4%	82.4%	100.0%	85.2%	86.6%
13d. The ease of use of PTOnet (logging on/off, passwords, etc.)																						
- dissatisfied	20.2%	23.4%	24.5%	20.8%	10.5%	22.6%	13.8%	27.2%	12.7%	16.2%	5.9%	9.1%	0.0%	20.0%	10.0%	13.3%	25.0%	12.5%	12.9%	0.0%	18.5%	11.6%
- satisfied	79.8%	76.6%	75.5%	79.2%	89.5%	77.4%	86.2%	72.8%	87.3%	83.8%	94.1%	90.9%	100.0%	80.0%	90.0%	86.7%	75.0%	87.5%	87.1%	100.0%	81.5%	88.4%
13e. The reliability of PTOnet for storing files (are saved files reliably relocated when needed?)																						
- dissatisfied	14.2%	14.6%	16.5%	4.8%	6.1%	10.7%	6.9%	17.4%	10.6%	13.6%	6.3%	10.0%	0.0%	0.0%	11.1%	13.8%	33.3%	28.6%	15.9%	0.0%	0.0%	15.3%
- satisfied	85.8%	85.4%	83.5%	95.2%	93.9%	89.3%	93.1%	82.6%	89.4%	86.4%	93.8%	90.0%	100.0%	100.0%	88.9%	86.3%	66.7%	71.4%	84.1%	100.0%	100.0%	84.7%
14. What % of all of the computer work you do can be accomplished from your desktop?																						
- zero %	3.4%	3.5%	0.2%	39.0%	13.3%	0.0%	0.0%	0.0%	6.8%	1.5%	29.4%	8.3%	16.7%	0.0%	0.0%	2.3%	0.0%	14.3%	2.8%	33.3%	0.0%	0.0%
- 20-40%	7.8%	7.4%	5.1%	17.1%	13.3%	12.9%	6.9%	8.7%	14.5%	13.4%	35.3%	8.3%	0.0%	20.0%	0.0%	3.4%	0.0%	14.3%	7.0%	0.0%	0.0%	0.0%
- 60-80%	37.7%	36.3%	38.3%	24.4%	35.6%	25.8%	27.6%	38.8%	58.1%	71.6%	23.5%	25.0%	50.0%	60.0%	70.0%	26.7%	25.0%	14.3%	33.8%	0.0%	24.0%	22.7%
- 100%	51.2%	52.9%	56.4%	19.5%	37.8%	61.3%	65.5%	52.4%	20.5%	13.4%	11.8%	58.3%	33.3%	20.0%	30.0%	67.6%	75.0%	57.1%	56.3%	66.7%	76.0%	77.3%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15a1. How frequently have you used APS Text over the past 3 months for your work?																						
- not at all	45.5%	27.9%	8.0%	100.0%	84.3%	45.2%	76.9%	25.0%	97.7%	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%	87.3%	75.0%	87.5%	90.8%	66.7%	84.6%	86.4%
- 1-sev. times month	15.5%	19.2%	20.5%	0.0%	9.8%	38.7%	19.2%	23.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	9.1%	0.0%	12.5%	4.6%	33.3%	7.7%	13.6%
- sev times week/day	38.9%	52.9%	71.5%	0.0%	5.9%	16.1%	3.8%	52.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	3.6%	25.0%	0.0%	4.6%	0.0%	7.7%	0.0%
15a2. How long have you been using APS Text, including earlier versions?																						
- less than 2 years	19.3%	19.3%	21.1%	100.0%	0.0%	15.0%	0.0%	10.8%	50.0%						50.0%	12.5%	0.0%	50.0%	0.0%	0.0%	0.0%	20.0%
- 2 to 4 years	18.2%	18.7%	18.2%	0.0%	37.5%	5.0%	14.3%	24.3%	50.0%						50.0%	8.3%	0.0%	50.0%	0.0%	0.0%	0.0%	10.0%
- 4 years +	62.5%	62.0%	60.7%	0.0%	62.5%	80.0%	85.7%	64.9%								79.2%	100.0%	0.0%	100.0%	100.0%	100.0%	70.0%
15a3. How would you describe your expertise on APS Text?																						
- beg./novice	15.9%	14.6%	10.9%	100.0%	37.5%	30.0%	75.0%	16.2%	66.7%	100.0%					50.0%	22.2%	0.0%	50.0%	25.0%	0.0%	0.0%	27.3%
- intermediate	50.4%	50.9%	54.0%	0.0%	37.5%	50.0%	12.5%	43.2%	33.3%	0.0%					50.0%	44.4%	100.0%	50.0%	12.5%	100.0%	50.0%	54.5%
- advanced/expert	33.7%	34.5%	35.1%	0.0%	25.0%	20.0%	12.5%	40.5%								33.3%	0.0%	0.0%	62.5%	0.0%	50.0%	18.2%
15b1. How frequently have you used APS Image over the past 3 months for your work?																						
- not at all	76.0%	69.6%	61.9%	98.2%	94.0%	82.1%	88.0%	63.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	88.5%	75.0%	100.0%	89.2%	33.3%	88.9%	89.7%
- 1-sev. times month	10.4%	12.9%	14.0%	1.8%	6.0%	17.9%	12.0%	17.0%								8.5%	25.0%	0.0%	7.7%	66.7%	3.7%	8.6%
- sev times week/day	13.6%	17.5%	24.1%	0.0%	0.0%	0.0%	0.0%	19.1%								3.0%	0.0%	0.0%	3.1%	0.0%	7.4%	1.7%
15b2. How long have you been using APS Image, including earlier versions?																						
- less than 2 years	50.0%	53.4%	56.0%	100.0%	0.0%	44.4%	25.0%	45.7%								23.8%	50.0%		14.3%	50.0%	0.0%	33.3%
- 2 to 4 years	16.3%	16.7%	16.3%	0.0%	0.0%	11.1%	25.0%	22.9%								14.3%	0.0%		14.3%	0.0%	0.0%	33.3%
- 4 years +	33.7%	29.9%	27.7%	0.0%	100.0%	44.4%	50.0%	31.4%								61.9%	50.0%		71.4%	50.0%	100.0%	33.3%
15b3. How would you describe your expertise on APS Image?																						
- beg./novice	36.6%	35.5%	30.9%	100.0%	0.0%	70.0%	100.0%	37.1%								38.5%	50.0%	0.0%	33.3%	50.0%	25.0%	50.0%
- intermediate	34.1%	34.6%	37.6%	0.0%	66.7%	10.0%	0.0%	31.4%								38.5%	50.0%	100.0%	33.3%	50.0%	25.0%	37.5%
- advanced/expert	29.4%	29.9%	31.5%	0.0%	33.3%	20.0%	0.0%	31.4%								23.1%	0.0%	0.0%	33.3%	0.0%	50.0%	12.5%
15c1. How frequently have you used PALM over the past 3 months for your work?																						
- not at all	31.1%	13.8%	5.9%	19.7%	47.3%	3.2%	20.7%	26.0%	92.0%	97.6%	76.5%	90.9%	100.0%	100.0%	87.5%	71.9%	75.0%	62.5%	76.9%	33.3%	77.8%	66.7%
- 1-sev. times month	13.0%	13.2%	14.3%	4.9%	5.5%	0.0%	17.2%	21.0%	4.6%	0.0%	17.6%	0.0%	0.0%	0.0%	12.5%	13.2%	25.0%	12.5%	9.2%	0.0%	11.1%	18.3%
- sev times week/day	55.9%	73.0%	79.8%	75.4%	47.3%	96.8%	62.1%	53.0%	3.4%	2.4%	5.9%	9.1%	0.0%	0.0%	0.0%	15.0%	0.0%	25.0%	13.8%	66.7%	11.1%	15.0%
15c2. How long have you been using PALM, including earlier versions?																						
- less than 2 years	15.1%	15.0%	19.3%	14.9%	0.0%	3.3%	8.3%	5.4%	60.0%	100.0%	50.0%	100.0%			0.0%	13.0%	0.0%	0.0%	13.3%	0.0%	0.0%	21.1%
- 2 to 4 years	17.3%	18.2%	15.3%	40.4%	35.7%	0.0%	8.3%	23.0%	40.0%	0.0%	50.0%	0.0%			100.0%	4.3%	0.0%	33.3%	0.0%	0.0%	0.0%	5.3%
- 4 years +	67.6%	66.8%	65.3%	44.7%	64.3%	96.7%	83.3%	71.6%								82.6%	100.0%	66.7%	86.7%	100.0%	100.0%	73.7%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15c3. How would you describe your expertise on PALM?																						
- beg./novice	20.4%	19.8%	20.6%	19.6%	14.3%	0.0%	16.0%	27.0%	50.0%	50.0%	0.0%	100.0%			100.0%	20.8%	0.0%	33.3%	12.5%	0.0%	0.0%	33.3%
- intermediate	50.7%	52.7%	58.5%	32.6%	39.3%	50.0%	44.0%	44.6%	16.7%	0.0%	50.0%	0.0%			0.0%	39.6%	50.0%	33.3%	43.8%	0.0%	60.0%	33.3%
- advanced/expert	28.8%	27.5%	20.9%	47.8%	46.4%	50.0%	40.0%	28.4%	33.3%	50.0%	50.0%	0.0%			0.0%	39.6%	50.0%	33.3%	43.8%	100.0%	40.0%	33.3%
15d1. How frequently have you used X-Search over the past 3 months for your work?																						
- not at all	86.9%	98.4%	98.6%	98.2%	98.0%	100.0%	96.0%	97.7%	20.7%	1.4%	63.2%	63.6%	0.0%	40.0%	30.0%	93.9%	75.0%	100.0%	92.3%	100.0%	92.3%	96.6%
- 1-sev. times month	2.7%	0.3%	0.3%	1.8%	0.0%	0.0%	0.0%	0.0%	15.7%	5.8%	36.8%	18.2%	28.6%	40.0%	20.0%	2.4%	25.0%	0.0%	0.0%	0.0%	3.8%	3.4%
- sev times week/day	10.4%	1.3%	1.1%	0.0%	2.0%	0.0%	4.0%	2.3%	63.6%	92.8%	0.0%	18.2%	71.4%	20.0%	50.0%	3.6%	0.0%	0.0%	7.7%	0.0%	3.8%	0.0%
15d2. How long have you been using X-Search, including earlier versions?																						
- less than 2 years	32.4%	80.0%	93.3%	100.0%	0.0%	100.0%	50.0%	33.3%	19.8%	19.7%	0.0%	25.0%	33.3%	33.3%	14.3%	25.0%	0.0%		25.0%		50.0%	0.0%
- 2 to 4 years	16.2%								20.9%	21.2%	80.0%	25.0%	0.0%	0.0%	0.0%	12.5%	0.0%		25.0%		0.0%	0.0%
- 4 years +	51.5%	20.0%	6.7%	0.0%	100.0%	0.0%	50.0%	66.7%	59.3%	59.1%	20.0%	50.0%	66.7%	66.7%	85.7%	62.5%	100.0%		50.0%		50.0%	100.0%
15d3. How would you describe your expertise on X-Search?																						
- beg./novice	29.1%	77.4%	85.0%	100.0%	0.0%	100.0%	66.7%	33.3%	7.8%	0.0%	60.0%	20.0%	16.7%	33.3%	14.3%	46.2%	0.0%		42.9%		50.0%	66.7%
- intermediate	18.2%	12.9%	15.0%	0.0%	0.0%	0.0%	0.0%	33.3%	20.0%	14.1%	40.0%	40.0%	16.7%	33.3%	42.9%	30.8%	0.0%		42.9%		0.0%	33.3%
- advanced/expert	52.7%	9.7%	0.0%	0.0%	100.0%	0.0%	33.3%	33.3%	72.2%	85.9%	0.0%	40.0%	66.7%	33.3%	42.9%	23.1%	100.0%		14.3%		50.0%	0.0%
15e1. How frequently have you used TRAM over the past 3 months for your work?																						
- not at all	85.0%	99.7%	100.0%	98.2%	100.0%	100.0%	100.0%	98.9%	8.9%	0.0%	23.8%	25.0%	0.0%	20.0%	20.0%	92.7%	75.0%	87.5%	92.3%	100.0%	92.3%	94.8%
- 1-sev. times month	1.5%								6.5%	0.0%	9.5%	16.7%	0.0%	40.0%	20.0%	1.8%	0.0%	0.0%	3.1%	0.0%	3.8%	0.0%
- sev times week/day	13.5%	0.3%	0.0%	1.8%	0.0%	0.0%	0.0%	1.1%	84.7%	100.0%	66.7%	58.3%	100.0%	40.0%	60.0%	5.5%	25.0%	12.5%	4.6%	0.0%	3.8%	5.2%
15e2. How long have you been using TRAM, including earlier versions?																						
- less than 2 years	23.0%	84.2%	100.0%	66.7%	0.0%	100.0%	100.0%	50.0%	14.4%	18.2%	0.0%	22.2%	0.0%	0.0%	12.5%	9.1%	0.0%	0.0%	0.0%		0.0%	33.3%
- 2 to 4 years	15.1%								17.3%	16.7%	33.3%	33.3%	0.0%	0.0%	0.0%							
- 4 years +	61.8%	15.8%	0.0%	33.3%	100.0%	0.0%	0.0%	50.0%	68.3%	65.2%	66.7%	44.4%	100.0%	100.0%	87.5%	90.9%	100.0%	100.0%	100.0%		100.0%	66.7%
15e3. How would you describe your expertise on TRAM?																						
- beg./novice	24.8%	84.6%	94.1%	66.7%	0.0%	100.0%	100.0%	50.0%	6.7%	3.1%	0.0%	20.0%	0.0%	25.0%	25.0%	31.3%	0.0%	0.0%	37.5%		0.0%	50.0%
- intermediate	26.1%	0.04	0.06	0	0	0	0	0	27.6%	33.8%	0.0%	40.0%	16.7%	0.0%	25.0%	56.3%	100.0%	100.0%	62.5%		100.0%	0.0%
- advanced/expert	49.1%	11.5%	0.0%	33.3%	100.0%	0.0%	0.0%	50.0%	65.7%	63.1%	100.0%	40.0%	83.3%	75.0%	50.0%	12.5%	0.0%	0.0%	0.0%		0.0%	50.0%
15f1. How frequently have you used Copending over the past 3 months for your work?																						
- not at all	93.8%	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%	98.9%	55.7%	29.9%	95.2%	91.7%	85.7%	100.0%	60.0%	99.4%	100.0%	100.0%	98.5%	100.0%	100.0%	100.0%
- 1-sev. times month	2.3%								18.0%	28.4%	0.0%	0.0%	14.3%	0.0%	20.0%							
- sev times week/day	3.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	26.2%	41.8%	4.8%	8.3%	0.0%	0.0%	20.0%	0.6%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15f2. How long have you been using Copending, including earlier versions?																						
- less than 2 years	79.0%	94.4%	100.0%	100.0%		100.0%	100.0%	50.0%	76.4%	83.3%	0.0%	0.0%			50.0%	50.0%			50.0%			
- 2 to 4 years	12.3%								14.5%	6.3%	100.0%	100.0%			50.0%	50.0%			50.0%			
- 4 years +	8.6%	5.6%	0.0%	0.0%		0.0%	0.0%	50.0%	9.1%	10.4%	0.0%	0.0%			0.0%							
15f3. How would you describe your expertise on Copending?																						
- beg./novice	45.9%	88.5%	88.9%	100.0%		100.0%	100.0%	50.0%	23.2%	15.2%	100.0%	50.0%	100.0%	100.0%	25.0%	57.1%		100.0%	40.0%			100.0%
- intermediate	16.3%	7.7%	11.1%	0.0%		0.0%	0.0%	0.0%	21.4%	23.9%	0.0%	0.0%	0.0%	0.0%	25.0%	14.3%		0.0%	20.0%			0.0%
- advanced/expert	37.8%	3.8%	0.0%	0.0%		0.0%	0.0%	50.0%	55.4%	60.9%	0.0%	50.0%	0.0%	0.0%	50.0%	28.6%		0.0%	40.0%			0.0%
15g1. How frequently have you used E-mail over the past 3 months for your work?																						
- not at all	11.3%	12.1%	5.0%	65.5%	32.1%	0.0%	6.5%	5.7%	9.7%	1.4%	42.9%	16.7%	0.0%	0.0%	0.0%	9.2%	25.0%	44.4%	9.9%	0.0%	0.0%	7.1%
- 1-sev. times month	10.7%	15.2%	19.1%	6.9%	3.6%	0.0%	3.2%	17.9%	4.0%	1.4%	14.3%	0.0%	0.0%	0.0%	10.0%	1.1%	0.0%	0.0%	0.0%	33.3%	0.0%	1.4%
- sev times week/day	78.0%	72.8%	75.9%	27.6%	64.3%	100.0%	90.3%	76.4%	86.3%	97.1%	42.9%	83.3%	100.0%	100.0%	90.0%	89.7%	75.0%	55.6%	90.1%	66.7%	100.0%	91.4%
15g2. How long have you been using E-mail, including earlier versions?																						
- less than 2 years	58.3%	73.0%	80.3%	42.1%	60.0%	63.3%	37.0%	68.1%	34.0%	29.0%	60.0%	33.3%	50.0%	0.0%	40.0%	24.2%	50.0%	0.0%	13.8%	50.0%	21.4%	36.1%
- 2 to 4 years	31.3%	23.2%	17.3%	57.9%	34.3%	33.3%	44.4%	26.6%	48.0%	54.8%	40.0%	33.3%	50.0%	66.7%	20.0%	47.9%	50.0%	80.0%	50.8%	0.0%	46.4%	44.3%
- 4 years +	10.4%	3.8%	2.4%	0.0%	5.7%	3.3%	18.5%	5.3%	18.0%	16.1%	0.0%	33.3%	0.0%	33.3%	40.0%	27.9%	0.0%	20.0%	35.4%	50.0%	32.1%	19.7%
15g3. How would you describe your expertise on E-mail?																						
- beg./novice	20.2%	26.7%	29.1%	34.8%	8.8%	23.3%	10.3%	28.0%	13.6%	6.3%	45.5%	20.0%	16.7%	0.0%	20.0%	1.8%	0.0%	0.0%	0.0%	0.0%	3.7%	3.3%
- intermediate	43.8%	44.7%	45.1%	39.1%	47.1%	46.7%	48.3%	41.9%	34.0%	41.3%	18.2%	20.0%	16.7%	33.3%	30.0%	42.7%	25.0%	60.0%	38.5%	50.0%	48.1%	44.3%
- advanced/expert	35.9%	28.6%	25.9%	26.1%	44.1%	30.0%	41.4%	30.1%	52.4%	52.4%	36.4%	60.0%	66.7%	66.7%	50.0%	55.5%	75.0%	40.0%	61.5%	50.0%	48.1%	52.5%
15h1. How frequently have you used MS Word over the past 3 months for your work?																						
- not at all	40.5%	51.1%	59.2%	60.3%	40.0%	32.1%	13.3%	36.9%	15.4%	7.2%	42.9%	25.0%	14.3%	0.0%	10.0%	17.3%	50.0%	44.4%	8.6%	0.0%	14.3%	23.1%
- 1-sev. times month	19.1%	24.4%	23.6%	17.2%	14.5%	35.7%	13.3%	36.9%	9.8%	5.8%	23.8%	8.3%	0.0%	25.0%	10.0%	10.6%	25.0%	11.1%	8.6%	33.3%	7.1%	12.3%
- sev times week/day	40.4%	24.5%	17.2%	22.4%	45.5%	32.1%	73.3%	26.2%	74.8%	87.0%	33.3%	66.7%	85.7%	75.0%	80.0%	72.1%	25.0%	44.4%	82.9%	66.7%	78.6%	64.6%
15h2. How long have you been using MS Word, including earlier versions?																						
- less than 2 years	45.3%	55.3%	62.1%	31.8%	46.9%	73.7%	45.8%	49.2%	38.1%	32.8%	60.0%	37.5%	66.7%	25.0%	37.5%	27.3%	50.0%	40.0%	21.3%	50.0%	21.7%	34.8%
- 2 to 4 years	33.2%	26.7%	19.0%	50.0%	40.6%	15.8%	29.2%	32.8%	48.5%	54.1%	30.0%	25.0%	33.3%	75.0%	50.0%	41.0%	50.0%	40.0%	42.6%	0.0%	56.5%	32.6%
- 4 years +	21.5%	18.0%	19.0%	18.2%	12.5%	10.5%	25.0%	18.0%	13.4%	13.1%	10.0%	37.5%	0.0%	0.0%	12.5%	31.7%	0.0%	20.0%	36.1%	50.0%	21.7%	32.6%
15h3. How would you describe your expertise on MS Word?																						
- beg./novice	25.3%	34.3%	30.6%	37.5%	29.0%	50.0%	42.3%	36.5%	14.4%	14.8%	30.0%	0.0%	16.7%	25.0%	0.0%	11.4%	0.0%	40.0%	9.7%	50.0%	13.6%	8.5%
- intermediate	42.0%	37.7%	38.2%	29.2%	38.7%	35.0%	38.5%	39.7%	50.5%	49.2%	30.0%	66.7%	50.0%	50.0%	71.4%	45.7%	50.0%	60.0%	40.3%	0.0%	45.5%	53.2%
- advanced/expert	32.7%	28.0%	31.2%	33.3%	32.3%	15.0%	19.2%	23.8%	35.1%	36.1%	40.0%	33.3%	33.3%	25.0%	28.6%	42.9%	50.0%	0.0%	50.0%	50.0%	40.9%	38.3%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15i1. How frequently have you used Word Perfect over the past 3 months for your work?																						
- not at all	26.9%	18.7%	14.3%	54.2%	32.7%	6.5%	16.7%	13.3%	56.0%	59.4%	45.0%	58.3%	14.3%	100.0%	66.7%	37.6%	75.0%	22.2%	40.3%	33.3%	57.1%	26.9%
- 1-sev. times month	16.5%	14.1%	10.4%	18.6%	16.4%	29.0%	33.3%	15.2%	21.6%	20.3%	30.0%	25.0%	28.6%	0.0%	11.1%	23.0%	0.0%	22.2%	26.9%	33.3%	17.9%	22.4%
- sev times week/day	56.5%	67.1%	75.4%	27.1%	50.9%	64.5%	50.0%	71.4%	22.4%	20.3%	25.0%	16.7%	57.1%	0.0%	22.2%	39.3%	25.0%	55.6%	32.8%	33.3%	25.0%	50.7%
15i2. How long have you been using Word Perfect, including earlier versions?																						
- less than 2 years	22.3%	22.2%	25.7%	24.0%	8.8%	29.6%	17.4%	11.9%	26.0%	22.2%	50.0%	0.0%	40.0%		0.0%	20.2%	50.0%	0.0%	24.3%	100.0%	27.3%	14.3%
- 2 to 4 years	33.5%	34.7%	32.6%	32.0%	44.1%	48.1%	26.1%	38.1%	54.0%	63.0%	40.0%	40.0%	60.0%		33.3%	20.2%	0.0%	33.3%	27.0%	0.0%	9.1%	16.7%
- 4 years +	44.2%	43.1%	41.6%	44.0%	47.1%	22.2%	56.5%	50.0%	20.0%	14.8%	10.0%	60.0%	0.0%		66.7%	59.6%	50.0%	66.7%	48.6%	0.0%	63.6%	69.0%
15i3. How would you describe your expertise on Word Perfect?																						
- beg./novice	14.4%	12.7%	9.8%	32.1%	11.4%	21.4%	33.3%	9.5%	27.5%	35.7%	30.0%	0.0%	20.0%		0.0%	13.5%	0.0%	0.0%	15.0%	100.0%	20.0%	11.4%
- intermediate	41.7%	43.0%	47.6%	28.6%	37.1%	60.7%	33.3%	28.6%	33.3%	28.6%	30.0%	20.0%	40.0%		100.0%	37.5%	50.0%	57.1%	32.5%	0.0%	60.0%	34.1%
- advanced/expert	43.9%	44.3%	42.6%	39.3%	51.4%	17.9%	33.3%	61.9%	39.2%	35.7%	40.0%	80.0%	40.0%		0.0%	49.0%	50.0%	42.9%	52.5%	0.0%	20.0%	54.5%
15j1. How frequently have you used Excel over the past 3 months for your work?																						
- not at all	44.5%	51.1%	57.0%	65.5%	44.6%	25.8%	17.2%	41.6%	26.8%	20.0%	47.4%	36.4%	28.6%	40.0%	10.0%	29.1%	75.0%	55.6%	21.4%	0.0%	28.6%	32.3%
- 1-sev. times month	23.9%	22.2%	23.5%	10.9%	14.3%	22.6%	31.0%	24.8%	34.8%	38.3%	36.8%	36.4%	14.3%	20.0%	30.0%	25.7%	0.0%	11.1%	20.0%	33.3%	32.1%	32.3%
- sev times week/day	31.6%	26.7%	19.4%	23.6%	41.1%	51.6%	51.7%	33.7%	38.4%	41.7%	15.8%	27.3%	57.1%	40.0%	60.0%	45.3%	25.0%	33.3%	58.6%	66.7%	39.3%	35.4%
15j2. How long have you been using Excel, including earlier versions?																						
- less than 2 years	44.7%	52.6%	67.3%	42.1%	35.7%	43.5%	13.6%	40.0%	43.7%	43.2%	50.0%	57.1%	25.0%	0.0%	50.0%	22.6%	100.0%	25.0%	15.1%	50.0%	25.0%	27.3%
- 2 to 4 years	35.0%	32.1%	20.0%	36.8%	50.0%	43.5%	50.0%	45.5%	50.7%	52.3%	33.3%	42.9%	75.0%	100.0%	37.5%	37.1%	0.0%	50.0%	39.6%	0.0%	40.0%	34.1%
- 4 years +	20.3%	15.4%	12.7%	21.1%	14.3%	13.0%	36.4%	14.5%	5.6%	4.5%	16.7%	0.0%	0.0%	0.0%	12.5%	40.3%	0.0%	25.0%	45.3%	50.0%	35.0%	38.6%
15j3. How would you describe your expertise on Excel?																						
- beg./novice	39.3%	38.2%	45.6%	39.1%	28.6%	20.8%	20.8%	35.1%	52.6%	63.0%	37.5%	37.5%	25.0%	0.0%	50.0%	30.8%	100.0%	0.0%	17.5%	50.0%	40.0%	43.5%
- intermediate	35.1%	37.3%	35.1%	39.1%	39.3%	54.2%	50.0%	29.8%	31.6%	19.6%	37.5%	62.5%	75.0%	50.0%	37.5%	32.3%	0.0%	75.0%	31.6%	0.0%	40.0%	28.3%
- advanced/expert	25.7%	24.5%	19.3%	21.7%	32.1%	25.0%	29.2%	35.1%	15.8%	17.4%	25.0%	0.0%	0.0%	50.0%	12.5%	36.9%	0.0%	25.0%	50.9%	50.0%	20.0%	28.3%
15k1. How frequently have you used MS Access over the past 3 months for your work?																						
- not at all	83.9%	88.7%	90.9%	92.6%	80.8%	93.1%	74.1%	84.9%	77.6%	86.0%	82.4%	63.6%	83.3%	40.0%	55.6%	71.3%	100.0%	87.5%	63.6%	100.0%	70.4%	74.6%
- 1-sev. times month	11.4%	8.9%	7.7%	5.6%	13.5%	3.4%	14.8%	12.9%	15.3%	12.0%	11.8%	18.2%	16.7%	40.0%	22.2%	19.3%	0.0%	12.5%	24.2%	0.0%	25.9%	14.3%
- sev times week/day	4.7%	2.4%	1.3%	1.9%	5.8%	3.4%	11.1%	2.2%	7.1%	2.0%	5.9%	18.2%	0.0%	20.0%	22.2%	9.4%	0.0%	0.0%	12.1%	0.0%	3.7%	11.1%
15k2. How long have you been using MS Access, including earlier versions?																						
- less than 2 years	83.8%	87.2%	90.5%	100.0%	77.8%	100.0%	77.8%	80.0%	82.6%	70.0%	100.0%	100.0%		100.0%	66.7%	83.3%		100.0%	80.0%		87.5%	85.7%
- 2 to 4 years	11.6%	10.5%	9.5%	0.0%	11.1%	0.0%	22.2%	13.3%	13.0%	30.0%	0.0%	0.0%		0.0%	0.0%	10.4%		0.0%	16.0%		12.5%	0.0%
- 4 years +	4.6%	2.3%	0.0%	0.0%	11.1%	0.0%	0.0%	6.7%	4.3%	0.0%	0.0%	0.0%		0.0%	33.3%	6.3%		0.0%	4.0%		0.0%	14.3%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15k3. How would you describe your expertise on MS Access?																						
- beg./novice	67.0%	66.7%	67.3%	72.7%	37.5%	100.0%	80.0%	58.8%	60.0%	50.0%	50.0%	80.0%	100.0%	50.0%	66.7%	67.9%		100.0%	65.4%		66.7%	70.6%
- intermediate	22.3%	22.5%	23.1%	18.2%	50.0%	0.0%	0.0%	29.4%	32.0%	50.0%	0.0%	20.0%	0.0%	50.0%	33.3%	20.8%		0.0%	26.9%		22.2%	11.8%
- advanced/expert	10.7%	10.8%	9.6%	9.1%	12.5%	0.0%	20.0%	11.8%	8.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	11.3%		0.0%	7.7%		11.1%	17.6%
15l1. How frequently have you used PowerPoint over the past 3 months for your work?																						
- not at all	76.5%	83.8%	87.4%	88.9%	70.4%	82.1%	62.1%	81.1%	78.1%	81.3%	82.4%	72.7%	66.7%	100.0%	55.6%	51.1%	100.0%	75.0%	47.8%	100.0%	33.3%	53.8%
- 1-sev. times month	19.8%	14.4%	11.2%	7.4%	27.8%	17.9%	31.0%	16.8%	18.8%	14.6%	17.6%	18.2%	33.3%	0.0%	44.4%	40.3%	0.0%	12.5%	42.0%	0.0%	55.6%	40.0%
- sev times week/day	3.6%	1.9%	1.3%	3.7%	1.9%	0.0%	6.9%	2.1%	3.1%	4.2%	0.0%	9.1%	0.0%	0.0%	0.0%	8.5%	0.0%	12.5%	10.1%	0.0%	11.1%	6.2%
15l2. How long have you been using PowerPoint, including earlier versions?																						
- less than 2 years	67.5%	76.6%	75.5%	100.0%	92.9%	100.0%	72.7%	52.6%	75.0%	75.0%	75.0%	66.7%	100.0%		66.7%	56.6%		50.0%	54.3%		61.1%	57.1%
- 2 to 4 years	25.7%	18.9%	20.8%	0.0%	0.0%	0.0%	18.2%	42.1%	25.0%	25.0%	25.0%	33.3%	0.0%		33.3%	34.9%		50.0%	34.3%		33.3%	35.7%
- 4 years +	6.8%	4.5%	3.8%	0.0%	7.1%	0.0%	9.1%	5.3%								8.4%		0.0%	11.4%		5.6%	7.1%
15l3. How would you describe your expertise on PowerPoint?																						
- beg./novice	63.6%	68.2%	67.7%	88.9%	60.0%	100.0%	66.7%	55.0%	72.0%	66.7%	50.0%	75.0%	100.0%		100.0%	54.7%		50.0%	47.1%		50.0%	65.6%
- intermediate	20.9%	20.2%	20.0%	11.1%	33.3%	0.0%	16.7%	25.0%	20.0%	25.0%	25.0%	25.0%	0.0%		0.0%	24.4%		0.0%	29.4%		27.8%	18.8%
- advanced/expert	15.5%	11.6%	12.3%	0.0%	6.7%	0.0%	16.7%	20.0%	8.0%	8.3%	25.0%	0.0%	0.0%		0.0%	20.9%		50.0%	23.5%		22.2%	15.6%
15m1. How frequently have you used Action Writer over the past 3 months for your work?																						
- not at all	51.7%	32.0%	8.6%	92.6%	88.2%	72.4%	92.0%	43.2%	97.8%	97.8%	100.0%	100.0%	100.0%	100.0%	87.5%	99.4%	100.0%	85.7%	100.0%	100.0%	100.0%	100.0%
- 1-sev. times month	4.9%	6.7%	6.9%	3.7%	3.9%	20.7%	8.0%	4.2%								0.6%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%
- sev times week/day	43.5%	61.3%	84.5%	3.7%	7.8%	6.9%	0.0%	52.6%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	12.5%							
15m2. How long have you been using Action Writer, including earlier versions?																						
- less than 2 years	38.9%	38.4%	39.2%	42.9%	0.0%	60.0%	33.3%	33.3%	33.3%	50.0%					0.0%							
- 2 to 4 years	48.0%	48.6%	47.0%	57.1%	66.7%	30.0%	66.7%	58.8%	33.3%	0.0%					100.0%							
- 4 years +	13.1%	13.0%	13.8%	0.0%	33.3%	10.0%	0.0%	7.8%	33.3%	50.0%					0.0%							
15m3. How would you describe your expertise on Action Writer?																						
- beg./novice	13.8%	11.9%	10.1%	71.4%	0.0%	54.5%	66.7%	5.9%	60.0%	66.7%			100.0%		0.0%	75.0%			66.7%			100.0%
- intermediate	40.5%	40.5%	42.1%	28.6%	16.7%	18.2%	0.0%	41.2%	20.0%	0.0%			0.0%		100.0%	25.0%			33.3%			0.0%
- advanced/expert	45.8%	47.5%	47.8%	0.0%	83.3%	27.3%	33.3%	52.9%	20.0%	33.3%			0.0%		0.0%							
15n1. How frequently have you used PCT over the past 3 months for your work?																						
- not at all	59.1%	41.6%	21.2%	96.3%	86.3%	72.4%	84.6%	53.2%	97.8%	97.8%	100.0%	100.0%	100.0%	100.0%	87.5%	99.4%	100.0%	100.0%	98.4%	100.0%	100.0%	100.0%
- 1-sev. times month	36.9%	52.9%	73.4%	3.7%	7.8%	24.1%	3.8%	38.3%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.6%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%
- sev times week/day	4.0%	5.6%	5.4%	0.0%	5.9%	3.4%	11.5%	8.5%	1.1%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%							

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15n2. How long have you been using PCT, including earlier versions?																						
- less than 2 years	39.1%	39.1%	41.1%	80.0%	14.3%	40.0%	20.0%	25.6%	33.3%	50.0%					0.0%							
- 2 to 4 years	51.3%	52.0%	50.2%	20.0%	42.9%	40.0%	60.0%	72.1%	33.3%	0.0%					100.0%	50.0%	0.0%		100.0%			
- 4 years +	9.6%	9.0%	8.7%	0.0%	42.9%	20.0%	20.0%	2.3%	33.3%	50.0%					0.0%	50.0%	100.0%		0.0%			
15n3. How would you describe your expertise on PCT?																						
- beg./novice	25.1%	22.9%	23.6%	83.3%	0.0%	36.4%	33.3%	9.1%	80.0%	66.7%			100.0%		100.0%	80.0%	0.0%		100.0%			100.0%
- intermediate	51.6%	53.2%	55.3%	16.7%	25.0%	27.3%	0.0%	61.4%														
- advanced/expert	23.4%	23.9%	21.1%	0.0%	75.0%	36.4%	66.7%	29.5%	20.0%	33.3%			0.0%		0.0%	20.0%	100.0%		0.0%			0.0%
15o1. How frequently have you used ID Manual over the past 3 months for your work?																						
- not at all	85.6%	92.5%	90.0%	96.4%	94.1%	92.6%	100.0%	97.7%	31.9%	2.9%	100.0%	63.6%	16.7%	80.0%	66.7%	98.8%	75.0%	100.0%	98.4%	100.0%	100.0%	100.0%
- 1-sev. times month	5.0%	5.2%	7.3%	3.6%	3.9%	3.7%	0.0%	0.0%	9.5%	8.8%	0.0%	27.3%	16.7%	20.0%	0.0%	1.2%	25.0%	0.0%	1.6%	0.0%	0.0%	0.0%
- sev times week/day	9.4%	2.3%	2.7%	0.0%	2.0%	3.7%	0.0%	2.3%	58.6%	88.2%	0.0%	9.1%	66.7%	0.0%	33.3%							
15o2. How long have you been using ID Manual, including earlier versions?																						
- less than 2 years	72.2%	79.3%	83.7%	80.0%	0.0%	100.0%	100.0%	50.0%	65.7%	64.4%		100.0%	100.0%	100.0%	0.0%	100.0%	100.0%		100.0%			
- 2 to 4 years	22.2%	19.0%	16.3%	20.0%	50.0%	0.0%	0.0%	50.0%	28.6%	28.8%		0.0%	0.0%	0.0%	100.0%							
- 4 years +	5.6%	1.7%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	5.7%	6.8%		0.0%	0.0%	0.0%	0.0%							
15o3. How would you describe your expertise on ID Manual?																						
- beg./novice	47.1%	68.0%	67.3%	100.0%	0.0%	80.0%	100.0%	40.0%	21.6%	18.0%		60.0%	50.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%			100.0%
- intermediate	32.9%	25.3%	27.3%	0.0%	50.0%	20.0%	0.0%	40.0%	43.2%	47.5%		40.0%	25.0%	0.0%	0.0%							
- advanced/expert	20.0%	6.7%	5.5%	0.0%	50.0%	0.0%	0.0%	20.0%	35.1%	34.4%		0.0%	25.0%	100.0%	100.0%							
15p1. How frequently have you used TMEP over the past 3 months for your work?																						
- not at all	90.7%	97.9%	97.8%	96.2%	100.0%	96.3%	100.0%	97.7%	40.5%	17.7%	100.0%	72.7%	14.3%	80.0%	44.4%	98.1%	75.0%	100.0%	100.0%	100.0%	92.3%	100.0%
- 1-sev. times month	4.8%	1.5%	1.6%	1.9%	0.0%	3.7%	0.0%	1.1%	27.0%	35.5%	0.0%	27.3%	42.9%	20.0%	11.1%	1.9%	25.0%	0.0%	0.0%	0.0%	7.7%	0.0%
- sev times week/day	4.5%	0.7%	0.5%	1.9%	0.0%	0.0%	0.0%	1.1%	32.4%	46.8%	0.0%	0.0%	42.9%	0.0%	44.4%							
15p2. How long have you been using TMEP, including earlier versions?																						
- less than 2 years	86.6%	89.3%	100.0%	60.0%		100.0%	100.0%	66.7%	87.5%	88.6%		100.0%	75.0%	100.0%	75.0%	66.7%	100.0%				50.0%	
- 2 to 4 years	5.2%	7.1%	0.0%	40.0%		0.0%	0.0%	0.0%	1.8%	2.3%		0.0%	0.0%	0.0%	0.0%	33.3%	0.0%				50.0%	
- 4 years +	8.2%	3.6%	0.0%	0.0%		0.0%	0.0%	33.3%	10.7%	9.1%		0.0%	25.0%	0.0%	25.0%							
15p3. How would you describe your expertise on TMEP?																						
- beg /novice	60.5%	84.6%	88.5%	83.3%		100.0%	100.0%	33.3%	39.7%	33.3%		75.0%	80.0%	100.0%	20.0%	83.3%	100.0%		100.0%		50.0%	100.0%
- intermediate	24.4%	10.3%	11.5%	0.0%		0.0%	0.0%	33.3%	34.9%	37.5%		25.0%	20.0%	0.0%	40.0%	16.7%	0.0%		0.0%		50.0%	0.0%
- advanced/expert	15.1%	5.1%	0.0%	16.7%		0.0%	0.0%	33.3%	25.4%	29.2%		0.0%	0.0%	0.0%	40.0%							

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15q1. How frequently have you used Desktop procurement over the past 3 months for your work?																						
- not at all	93.2%	98.2%	99.7%	98.1%	92.3%	100.0%	100.0%	94.4%	96.8%	100.0%	100.0%	90.9%	100.0%	100.0%	75.0%	74.9%	100.0%	71.4%	61.8%	100.0%	81.5%	84.5%
- 1-sev. times month	3.5%	1.0%	0.0%	1.9%	3.8%	0.0%	0.0%	3.4%	2.2%	0.0%	0.0%	9.1%	0.0%	0.0%	12.5%	10.8%	0.0%	14.3%	11.8%	0.0%	18.5%	6.9%
- sev times week/day	3.3%	0.8%	0.3%	0.0%	3.8%	0.0%	0.0%	2.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	14.4%	0.0%	14.3%	26.5%	0.0%	0.0%	8.6%
15q2. How long have you been using Desktop procurement, including earlier versions?																						
- less than 2 years	73.3%	93.5%	100.0%	100.0%	75.0%	100.0%	100.0%	85.7%	75.0%	100.0%		100.0%			50.0%	56.1%		50.0%	62.5%		60.0%	40.0%
- 2 to 4 years	22.1%	6.5%	0.0%	0.0%	25.0%	0.0%	0.0%	14.3%								39.0%		50.0%	33.3%		40.0%	50.0%
- 4 years +	4.7%								25.0%	0.0%		0.0%			50.0%	4.9%		0.0%	4.2%		0.0%	10.0%
15q3. How would you describe your expertise on Desktop procurement?																						
- beg./novice	61.2%	85.4%	95.2%	100.0%	60.0%	100.0%	100.0%	57.1%	57.1%	100.0%		0.0%	100.0%		0.0%	36.4%		0.0%	33.3%		80.0%	30.0%
- intermediate	22.3%	9.8%	4.8%	0.0%	20.0%	0.0%	0.0%	28.6%	28.6%	0.0%		100.0%	0.0%		50.0%	31.8%		100.0%	37.0%		20.0%	10.0%
- advanced/expert	16.5%	4.9%	0.0%	0.0%	20.0%	0.0%	0.0%	14.3%	14.3%	0.0%		0.0%	0.0%		50.0%	31.8%		0.0%	29.6%		0.0%	60.0%
15r1. How frequently have you used FFS over the past 3 months for your work?																						
- not at all	93.3%	98.2%	99.7%	100.0%	90.4%	100.0%	96.2%	95.5%	95.7%	100.0%	94.1%	90.9%	100.0%	100.0%	75.0%	76.8%	100.0%	71.4%	66.2%	100.0%	81.5%	84.7%
- 1-sev. times month	2.6%	1.0%	0.0%	0.0%	5.8%	0.0%	3.8%	2.2%	3.2%	0.0%	5.9%	9.1%	0.0%	0.0%	12.5%	6.0%	0.0%	14.3%	4.4%	0.0%	14.8%	3.4%
- sev times week/day	4.1%	0.8%	0.3%	0.0%	3.8%	0.0%	0.0%	2.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.3%	0.0%	14.3%	29.4%	0.0%	3.7%	11.9%
15r2. How long have you been using FFS, including earlier versions?																						
- less than 2 years	48.3%	75.0%	100.0%	100.0%	40.0%	100.0%	50.0%	33.3%	66.7%	100.0%	100.0%	100.0%			0.0%	20.0%		50.0%	22.7%		20.0%	9.1%
- 2 to 4 years	30.3%	21.9%	0.0%	0.0%	40.0%	0.0%	50.0%	66.7%								50.0%		50.0%	54.5%		80.0%	27.3%
- 4 years +	21.3%	3.1%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%			100.0%	30.0%		0.0%	22.7%		0.0%	63.6%
15r3. How would you describe your expertise on FFS?																						
- beg./novice	54.4%	78.6%	95.2%	100.0%	33.3%	100.0%	100.0%	33.3%	57.1%	100.0%	100.0%	0.0%	100.0%		0.0%	26.2%		50.0%	20.8%		75.0%	16.7%
- intermediate	14.6%	14.3%	4.8%	0.0%	50.0%	0.0%	0.0%	33.3%	28.6%	0.0%	0.0%	100.0%	0.0%		50.0%	11.9%		0.0%	16.7%		25.0%	0.0%
- advanced/expert	31.1%	7.1%	0.0%	0.0%	16.7%	0.0%	0.0%	33.3%	14.3%	0.0%	0.0%	0.0%	0.0%		50.0%	61.9%		50.0%	62.5%		0.0%	83.3%
15s1. How frequently have you used CRDA over the past 3 months for your work?																						
- not at all	97.4%	98.2%	99.7%	87.0%	96.0%	100.0%	100.0%	98.9%	93.6%	95.8%	94.1%	100.0%	100.0%	80.0%	75.0%	96.9%	100.0%	85.7%	96.9%	100.0%	96.3%	98.3%
- 1-sev. times month	1.0%	0.8%	0.0%	5.6%	2.0%	0.0%	0.0%	1.1%	2.1%	2.1%	0.0%	0.0%	0.0%	0.0%	12.5%	1.2%	0.0%	0.0%	1.6%	0.0%	3.7%	0.0%
- sev times week/day	1.6%	1.0%	0.3%	7.4%	2.0%	0.0%	0.0%	0.0%	4.3%	2.1%	5.9%	0.0%	0.0%	20.0%	12.5%	1.8%	0.0%	14.3%	1.6%	0.0%	0.0%	1.7%
15s2. How long have you been using CRDA, including earlier versions?																						
- less than 2 years	66.7%	83.9%	100.0%	70.0%	50.0%	100.0%	100.0%	66.7%	16.7%	50.0%	0.0%			0.0%	0.0%	20.0%		0.0%	0.0%		0.0%	100.0%
- 2 to 4 years	10.4%	6.5%	0.0%	10.0%	50.0%	0.0%	0.0%	0.0%	33.3%	0.0%	100.0%			0.0%	50.0%	20.0%		0.0%	50.0%		0.0%	0.0%
- 4 years +	22.9%	9.7%	0.0%	20.0%	0.0%	0.0%	0.0%	33.3%	50.0%	50.0%	0.0%			100.0%	50.0%	60.0%		100.0%	50.0%		100.0%	0.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
15s3. How would you describe your expertise on CRDA?																						
- beg./novice	73.4%	82.9%	95.2%	63.6%	50.0%	100.0%	100.0%	66.7%	28.6%	33.3%	0.0%			0.0%	50.0%	50.0%		0.0%	50.0%		100.0%	50.0%
- intermediate	14.1%	9.8%	4.8%	18.2%	0.0%	0.0%	0.0%	33.3%	28.6%	33.3%	0.0%			0.0%	50.0%	37.5%		0.0%	50.0%		0.0%	50.0%
- advanced/expert	12.5%	7.3%	0.0%	18.2%	50.0%	0.0%	0.0%	0.0%	42.9%	33.3%	100.0%			100.0%	0.0%	12.5%		100.0%	0.0%		0.0%	0.0%
16a1. Have you received formal training on APS Text?																						
- yes	94.8%	96.4%	97.9%		50.0%	100.0%	83.3%	93.3%	50.0%						50.0%	81.0%	100.0%	100.0%	83.3%	100.0%	100.0%	62.5%
- no	5.2%	3.6%	2.1%		50.0%	0.0%	16.7%	6.7%	50.0%						50.0%	19.0%	0.0%	0.0%	16.7%	0.0%	0.0%	37.5%
16a2. Where did your APS Text training occur?																						
- PTO Univ	2.9%	2.9%	2.8%	50.0%	0.0%	0.0%	7.1%	2.5%								3.3%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%
- Pat Acad	70.6%	72.6%	75.9%	0.0%	83.3%	60.7%	42.9%	66.7%								36.7%	0.0%	0.0%	38.5%	0.0%	50.0%	37.5%
- WED	0.3%	0.4%	0.0%	0.0%	0.0%	3.6%	0.0%	1.2%														
- Other PTO	30.6%	28.3%	25.1%	50.0%	33.3%	42.9%	50.0%	34.6%								66.7%	100.0%	100.0%	61.5%	100.0%	50.0%	75.0%
- Outside school	0.7%	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	1.2%								3.3%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%
16a3. What skill levels did your APS Text training cover?																						
- init/beginner's	92.4%	92.7%	91.6%	100.0%	100.0%	96.3%	92.3%	96.0%								88.9%	100.0%	100.0%	91.7%		83.3%	85.7%
- advanced	25.0%	25.2%	23.0%	0.0%	20.0%	25.9%	46.2%	33.3%								22.2%	0.0%	0.0%	16.7%		16.7%	42.9%
16a4. When did initial training on APS Text begin relative to when you started using the system for your work?																						
- before	33.4%	32.4%	30.9%	100.0%	50.0%	35.7%	30.8%	36.7%								50.0%	100.0%	100.0%	25.0%	100.0%	66.7%	57.1%
- same time	35.9%	36.5%	35.0%	0.0%	16.7%	46.4%	46.2%	40.5%								21.4%	0.0%	0.0%	25.0%	0.0%	16.7%	28.6%
- after	30.7%	31.1%	34.0%	0.0%	33.3%	17.9%	23.1%	22.8%								28.6%	0.0%	0 0%	50.0%	0.0%	16.7%	14.3%
16b1. Have you received formal training on APS Image?																						
- yes	74.8%	78.8%	78.3%	0.0%	66.7%	80.0%	33.3%	88.2%								47.4%	100.0%		42.9%	50.0%	100.0%	16.7%
- no	25.2%	21.2%	21.7%	100.0%	33.3%	20.0%	66.7%	11.8%								52.6%	0.0%		57.1%	50.0%	0.0%	83.3%
16b2. Where did your APS Image training occur?																						
- PTO Univ	2.3%	2.6%	3.0%		0.0%	0.0%	0.0%	2.5%														
- Pat Acad	35.2%	35.6%	36.8%		33.3%	44.4%	16.7%	32.5%								33.3%	0.0%		66.7%	0.0%	25.0%	0.0%
- WED	1.4%	1.6%	0.8%		0.0%	11.1%	0.0%	2.5%														
- Other PTO	60.6%	59.7%	58.6%		66.7%	44.4%	83.3%	62.5%								66.7%	100.0%		33.3%	100.0%	75.0%	100.0%
- Outside school	2.3%	2.6%	1.5%		0.0%	0.0%	0.0%	7.5%														
16b3. What skill levels did your APS Image training cover?																						
- init/beginner's	92.8%	92.5%	91.8%		100.0%	100.0%	83.3%	94.4%								91.7%	100.0%		100.0%		100.0%	50.0%
- advanced	15.9%	17.1%	14.2%		0.0%	25.0%	50.0%	22.2%								8.3%	0.0%		0.0%		0.0%	50.0%
16b4. When did initial training on APS Image begin relative to when you started using the system for your work?																						
- before	41.9%	42.0%	39.4%		50.0%	55.6%	57.1%	43.9%								46.7%	100.0%	0.0%	20.0%	100.0%	50.0%	50.0%
- same time	36.7%	37.3%	38.6%		25.0%	33.3%	28.6%	36.6%								33.3%	0.0%	100.0%	40.0%	0.0%	25.0%	50.0%
- after	21.4%	20.7%	22 0%		25.0%	11.1%	14 3%	19.5%								20 0%	0.0%	0.0%	40.0%	0.0%	25.0%	0.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16c1. Have you received formal training on PALM?																						
- yes	34.8%	34.9%	30.3%	57.1%	41.4%	63.3%	39.1%	29.7%	14.3%	0.0%	25.0%	0.0%			0.0%	29.8%	0.0%	66.7%	26.7%	0.0%	33.3%	30.0%
- no	65.2%	65.1%	69.7%	42.9%	58.6%	36.7%	60.9%	70.3%	85.7%	100.0%	75.0%	100.0%			100.0%	70.2%	100.0%	33.3%	73.3%	100.0%	66.7%	70.0%
16c2. Where did your PALM training occur?																						
- PTO Univ	0.8%	0.9%	0.8%	0.0%	0.0%	0.0%	0.0%	3.4%														
- Pat Acad	34.0%	37.7%	54.2%	0.0%	0.0%	36.8%	20.0%	31.0%								16.7%	0.0%	0.0%	20.0%		33.3%	14.3%
- WED	1.6%	1.4%	0.8%	0.0%	7.1%	5.3%	0.0%	0.0%								5.6%	0.0%	0.0%	0.0%		0.0%	14.3%
- Other PTO	63.3%	59.5%	45.0%	92.9%	92.9%	52.6%	90.0%	65.5%								77.8%	100.0%	100.0%	80.0%		66.7%	71.4%
- Outside school	2.3%	2.3%	0.8%	7.1%	7.1%	5.3%	0.0%	0.0%														
16c3. What skill levels did your PALM training cover?																						
- init/beginner's	91.8%	92.7%	94.5%	85.0%	88.9%	87.5%	90.0%	96.3%	50.0%	100.0%			0.0%			81.3%	100.0%	0.0%	75.0%		100.0%	85.7%
- advanced	14.1%	13.6%	8.3%	15.0%	44.4%	25.0%	40.0%	7.4%	50.0%	0.0%			100.0%			25.0%	0.0%	100.0%	50.0%		0.0%	14.3%
16c4 When did initial training on PALM begin relative to when you started using the system for your work?																						
- before	36.9%	38.4%	43.9%	32.0%	33.3%	27.8%	30.0%	34.5%								26.3%	100.0%	0.0%	16.7%		0.0%	42.9%
- same time	36.1%	35.5%	31.6%	40.0%	40.0%	27.8%	50.0%	44.8%								36.8%	0.0%	50.0%	16.7%		66.7%	42.9%
- after	26.9%	26.1%	24.6%	28.0%	26.7%	44.4%	20.0%	20.7%								36.8%	0.0%	50.0%	66.7%		33.3%	14.3%
16d1. Have you received formal training on X-Search?																						
- yes	83.2%	50.0%	40.0%	100.0%	100.0%		0.0%	50.0%	91.7%	98.5%	71.4%	50.0%	85.7%	100.0%	71.4%	30.0%	100.0%		20.0%		50.0%	0.0%
- no	16.8%	50.0%	60.0%	0.0%	0.0%		100.0%	50.0%	8.3%	1.5%	28.6%	50.0%	14.3%	0.0%	28.6%	70.0%	0.0%		80.0%		50.0%	100.0%
16d2. Where did your X-Search training occur?																						
- PTO Univ	2.8%								3.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%							
- Pat Acad	1.9%								1.1%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%		100.0%		0.0%	
- WED	0.9%	25.0%	50.0%		0.0%			0.0%														
- Other PTO	94.3%	75.0%	50.0%		100.0%			100.0%	95.6%	93.8%	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%	100.0%		0.0%		100.0%	
- Outside school	0.0%																					
16d3. What skill levels did your X-Search training cover?																						
- init/beginner's	85.7%	100.0%	100.0%		100.0%				84.7%	87.1%	85.7%	100.0%	80.0%	33.3%	80.0%	75.0%	0.0%		100.0%		100.0%	
- advanced	38.8%	33.3%	0.0%		100.0%				40.0%	33.9%	42.9%	66.7%	60.0%	66.7%	60.0%	25.0%	100.0%		0.0%		0.0%	
16d4. When did initial training on X-Search begin relative to when you started using the system for your work?																						
- before	44.1%	20.0%	0.0%		50.0%				44.2%	48.4%	57.1%	50.0%	20.0%	0.0%	28.6%	40.0%	0.0%	0.0%	0.0%		100.0%	
- same time	43.1%	40.0%	66.7%		0.0%				45.3%	40.3%	42.9%	50.0%	80.0%	66.7%	57.1%	40.0%	100.0%	100.0%	0.0%		0.0%	
- after	12.7%	40.0%	33.3%		50.0%				10.5%	11.3%	0.0%	0.0%	0.0%	33.3%	14.3%	20.0%	0.0%	0.0%	100.0%		0.0%	
16e1. Have you received formal training on TRAM?																						
- yes	54.9%	50.0%		100.0%				0.0%	59.3%	60.9%	68.8%	44.4%	57.1%	75.0%	37.5%	16.7%	100.0%	100.0%	0.0%		0.0%	0.0%
- no	45.1%	50.0%		0.0%				100.0%	40.7%	39.1%	31.2%	55.6%	42.9%	25.0%	62.5%	83.3%	0.0%	0.0%	100.0%		100.0%	100.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16e2. Where did your TRAM training occur?																						
- PTO Univ	4.4%								5.8%	7.1%	0.0%	0.0%	0.0%	25.0%	0.0%							
- Pat Acad	2.2%								1.4%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	50.0%			
- WED	0.0%																					
- Other PTO	93.4%	100.0%	100.0%	100.0%	100.0%			100.0%	92.8%	90.5%	100.0%	100.0%	100.0%	75.0%	100.0%	75.0%	100.0%	100.0%	50.0%			
- Outside school	0.0%																					
16e3. What skill levels did your TRAM training cover?																						
- init/beginner's	86.8%	75.0%	100.0%	100.0%	0.0%				84.7%	86.8%	71.4%	75.0%	100.0%	66.7%	100.0%	100.0%	100.0%		100.0%			
- advanced	26.3%	50.0%	100.0%	0.0%	100.0%				30.5%	23.7%	57.1%	50.0%	33.3%	33.3%	25.0%							
16e4. When did initial training on TRAM begin relative to when you started using the system for your work?																						
- before	32.9%	16.7%	0.0%	50.0%	0.0%				37.1%	43.6%	37.5%	25.0%	0.0%	0.0%	40.0%							
- same time	46.3%	33.3%	50.0%	50.0%	0.0%				45.2%	33.3%	62.5%	75.0%	75.0%	50.0%	60.0%	50.0%	100.0%		0.0%			
- after	20.7%	50.0%	50.0%	0.0%	100.0%				17.7%	23.1%	0.0%	0.0%	25.0%	50.0%	0.0%	50.0%	0.0%		100.0%			
16f1. Have you received formal training on Copending?																						
- yes	16.9%								14.8%	12.8%	0.0%	100.0%	0.0%		25.0%							
- no	83.1%								85.2%	87.2%	100.0%	0.0%	100.0%		75.0%							
16f2. Where did your Copending training occur?																						
- PTO Univ	4.8%								6.7%	8.3%		0.0%		0.0%	0.0%							
- Pat Acad	0.0%																					
- WED	4.8%	50.0%				100.0%		0.0%														
- Other PTO	90.5%	50.0%				0.0%		100.0%	93.3%	91.7%		100.0%		100.0%	100.0%							
- Outside school	0.0%																					
16f3. What skill levels did your Copending training cover?																						
- init/beginner's	88.9%								84.6%	90.9%		100.0%		0.0%		100.0%	100.0%		100.0%			
- advanced	16.7%								23.1%	18.2%		0.0%		100.0%								
16f4. When did initial training on Copending begin relative to when you started using the system for your work?																						
- before	42.9%								46.7%	33.3%		100.0%		100.0%	100.0%							
- same time	38.1%	50.0%	100.0%		0.0%				40.0%	50.0%		0.0%		0.0%	0.0%							
- after	19.0%	50.0%	0.0%		100.0%				13.3%	16.7%		0.0%		0.0%	0.0%							
16g1. Have you received formal training on E-mail?																						
- yes	48.5%	48.2%	49.0%	70.0%	50.0%	74.2%	41.4%	34.0%	55.4%	57.4%	58.3%	70.0%	71.4%	20.0%	30.0%	43.5%	33.3%	80.0%	50.0%	0.0%	39.3%	38.5%
- no	51.5%	51.8%	51.0%	30.0%	50.0%	25.8%	58.6%	66.0%	44.6%	42.6%	41.7%	30.0%	28.6%	80.0%	70.0%	56.5%	66.7%	20.0%	50.0%	100.0%	60.7%	61.5%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16g2. Where did your E-mail training occur?																						
- PTO Univ	2.9%	2.9%	2.5%	0.0%	13.0%	0.0%	0.0%	2.8%	4.6%	2.4%	14.3%	14.3%	0.0%		0.0%	1.4%	0.0%	0.0%	3.2%		0.0%	0.0%
- Pat Acad	36.8%	53.7%	63.7%	12.5%	21.7%	50.0%	25.0%	47.2%	3.1%	4.9%	0.0%	0.0%	0.0%		0.0%	2.8%	50.0%	0.0%	0.0%		10.0%	0.0%
- WED	21.1%	10.8%	0.5%	43.8%	39.1%	20.8%	50.0%	16.7%	16.9%	12.2%	0.0%	42.9%	16.7%		50.0%	65.3%	0.0%	60.0%	74.2%		70.0%	58.3%
- Other PTO	37.4%	31.4%	31.9%	43.8%	21.7%	29.2%	25.0%	33.3%	73.8%	78.0%	71.4%	57.1%	83.3%		50.0%	26.4%	50.0%	40.0%	19.4%		10.0%	37.5%
- Outside school	4.3%	2.9%	2.9%	0.0%	8.7%	0.0%	0.0%	2.8%	4.6%	4.9%	14.3%	0.0%	0.0%		0.0%	6.9%	0.0%	0.0%	9.7%		10.0%	4.2%
16g3. What skill levels did your E-mail training cover?																						
- init/beginner's	95.8%	96.9%	97.4%	90.9%	100.0%	100.0%	100.0%	90.9%	90.5%	97.5%	83.3%	75.0%	80.0%		75.0%	95.4%	100.0%	80.0%	96.0%		100.0%	96.0%
- advanced	7.1%	4.1%	3.1%	9.1%	0.0%	4.2%	0.0%	12.1%	17.5%	5.0%	50.0%	37.5%	40.0%		25.0%	9.2%	0.0%	20.0%	12.0%		11.1%	4.0%
16g4. When did initial training on E-mail begin relative to when you started using the system for your work?																						
- before	42.2%	45.4%	48.2%	53.8%	36.4%	34.8%	54.5%	35.3%	27.7%	22.5%	57.1%	50.0%	0.0%		25.0%	43.3%	50.0%	60.0%	33.3%		12.5%	60.0%
- same time	31.5%	30.1%	27.6%	15.4%	40.9%	52.2%	18.2%	32.4%	38.5%	40.0%	28.6%	25.0%	66.7%		25.0%	29.9%	50.0%	40.0%	37.0%		37.5%	16.0%
- after	26.3%	24.5%	24.1%	30.8%	22.7%	13.0%	27.3%	32.4%	33.8%	37.5%	14.3%	25.0%	33.3%		50.0%	26.9%	0.0%	0.0%	29.6%		50.0%	24.0%
16h1. Have you received formal training on MS Word?																						
- yes	35.0%	20.6%	10.1%	78.3%	36.4%	15.8%	23.1%	18.5%	69.2%	75.0%	75.0%	55.6%	83.3%	25.0%	44.4%	37.8%	50.0%	60.0%	43.8%	33.3%	41.7%	26.0%
- no	65.0%	79.4%	89.9%	21.7%	63.6%	84.2%	76.9%	81.5%	30.8%	25.0%	25.0%	44.4%	16.7%	75.0%	55.6%	62.2%	50.0%	40.0%	56.2%	66.7%	58.3%	74.0%
16h2. Where did your MS Word training occur?																						
- PTO Univ	7.0%	10.9%	7.4%	10.0%	23.5%	0.0%	0.0%	12.5%	5.0%	2.0%	18.2%	16.7%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	7.1%	0.0%	0.0%	5.9%
- Pat Acad	8.6%	16.3%	22.2%	5.0%	11.8%	60.0%	14.3%	12.5%	2.5%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	7.1%	0.0%	11.1%	0.0%
- WED	37.0%	32.6%	14.8%	55.0%	29.4%	20.0%	57.1%	31.3%	22.5%	14.0%	18.2%	50.0%	16.7%	0.0%	83.3%	55.0%	100.0%	100.0%	53.6%	0.0%	44.4%	52.9%
- Other PTO	37.4%	30.4%	37.0%	25.0%	35.3%	20.0%	14.3%	31.3%	63.8%	72.0%	45.5%	50.0%	83.3%	100.0%	16.7%	18.3%	0.0%	0.0%	17.9%	0.0%	22.2%	23.5%
- Outside school	17.9%	15.2%	22.2%	20.0%	5.9%	0.0%	14.3%	12.5%	11.3%	10.0%	36.4%	0.0%	0.0%	0.0%	0.0%	28.3%	0.0%	0.0%	32.1%	100.0%	22.2%	29.4%
16h3. What skill levels did your MS Word training cover?																						
- init/beginner's	83.8%	88.6%	88.5%	86.7%	92.9%	100.0%	100.0%	76.9%	80.5%	85.4%	80.0%	71.4%	80.0%	100.0%	50.0%	78.9%	100.0%	50.0%	78.6%	100.0%	100.0%	73.3%
- advanced	29.8%	21.5%	15.4%	26.7%	14.3%	0.0%	33.3%	38.5%	31.2%	22.9%	70.0%	28.6%	20.0%	0.0%	50.0%	42.1%	0.0%	50.0%	50.0%	0.0%	12.5%	46.7%
16h4. When did initial training on MS Word begin relative to when you started using the system for your work?																						
- before	29.7%	44.2%	56.5%	56.3%	33.3%	50.0%	16.7%	30.8%	28.9%	29.2%	50.0%	33.3%	16.7%		0.0%	12.5%	0.0%	50.0%	14.3%	0.0%	0.0%	6.7%
- same time	24.9%	24.7%	21.7%	18.8%	13.3%	50.0%	33.3%	38.5%	28.9%	29.2%	20.0%	33.3%	50.0%		16.7%	21.4%	100.0%	25.0%	25.0%	0.0%	14.3%	13.3%
- after	45.4%	31.2%	21.7%	25.0%	53.3%	0.0%	50.0%	30.8%	42.1%	41.7%	30.0%	33.3%	33.3%		83.3%	66.1%	0.0%	25.0%	60.7%	100.0%	85.7%	80.0%
16i1. Have you received formal training on Word Perfect?																						
- yes	46.4%	46.8%	43.1%	85.2%	56.8%	41.4%	36.0%	50.5%	54.9%	50.0%	72.7%	40.0%	83.3%		0.0%	39.6%	0.0%	71.4%	42.5%	0.0%	41.7%	34.7%
- no	53.6%	53.2%	56.9%	14.8%	43.2%	58.6%	64.0%	49.5%	45.1%	50.0%	27.3%	60.0%	16.7%		100.0%	60.4%	100.0%	28.6%	57.5%	100.0%	58.3%	65.3%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16i2. Where did your Word Perfect training occur?																						
- PTO Univ	6.1%	5.2%	2.5%	19.2%	13.8%	0.0%	0.0%	3.9%	8.9%	3.8%	30.0%	0.0%	0.0%		0.0%	7.7%	0.0%	0.0%	15.0%		0.0%	4.8%
- Pat Acad	32.0%	43.4%	55.6%	7.7%	10.3%	69.2%	0.0%	43.1%	2.2%	3.8%	0.0%	0.0%	0.0%		0.0%	3.8%	0.0%	0.0%	5.0%		0.0%	4.8%
- WED	16.9%	13.5%	4.4%	30.8%	27.6%	23.1%	66.7%	13.7%	11.1%	3.8%	20.0%	50.0%	0.0%		50.0%	34.6%	0.0%	60.0%	30.0%		40.0%	33.3%
- Other PTO	33.4%	29.5%	31.3%	23.1%	34.5%	15.4%	11.1%	31.4%	68.9%	84.6%	30.0%	0.0%	100.0%		50.0%	23.1%	100.0%	20.0%	15.0%		20.0%	28.6%
- Outside school	17.9%	14.9%	11.3%	26.9%	37.9%	0.0%	33.3%	7.8%	13.3%	3.8%	40.0%	50.0%	0.0%		0.0%	34.6%	0.0%	20.0%	35.0%		40.0%	38.1%
16i3. What skill levels did your Word Perfect training cover?																						
- init/beginner's	89.3%	90.6%	93.5%	73.7%	83.3%	100.0%	77.8%	91.5%	87.8%	95.8%	75.0%	66.7%	75.0%		100.0%	83.0%		60.0%	73.7%		100.0%	94.7%
- advanced	22.2%	18.7%	12.9%	36.8%	29.2%	15.4%	44.4%	21.3%	29.3%	8.3%	87.5%	33.3%	50.0%		0.0%	36.2%		60.0%	42.1%		0.0%	31.6%
16i4. When did initial training on Word Perfect begin relative to when you started using the system for your work?																						
- before	32.8%	30.9%	30.8%	59.1%	25.9%	41.7%	22.2%	20.4%	40.0%	39.1%	50.0%	50.0%	20.0%		50.0%	37.0%	0.0%	80.0%	20.0%		33.3%	47.1%
- same time	22.5%	20.4%	19.9%	4.5%	11.1%	50.0%	33.3%	24.5%	27.5%	26.1%	25.0%	0.0%	60.0%		0.0%	19.6%	100.0%	20.0%	20.0%		0.0%	17.6%
- after	44.7%	48.7%	49.4%	36.4%	63.0%	8.3%	44.4%	55.1%	32.5%	34.8%	25.0%	50.0%	20.0%		50.0%	43.5%	0.0%	0.0%	60.0%		66.7%	35.3%
16j1. Have you received formal training on Excel?																						
- yes	30.5%	25.0%	8.3%	78.9%	45.2%	39.1%	37.5%	33.9%	31.7%	6.3%	90.0%	28.6%	60.0%	100.0%	66.7%	42.5%	0.0%	50.0%	50.9%	0.0%	40.0%	36.4%
- no	69.5%	75.0%	91.7%	21.1%	54.8%	60.9%	62.5%	66.1%	68.3%	93.7%	10.0%	71.4%	40.0%	0.0%	33.3%	57.5%	100.0%	50.0%	49.1%	100.0%	60.0%	63.6%
16j2. Where did your Excel training occur?																						
- PTO Univ	7.5%	8.7%	8.7%	11.1%	18.2%	0.0%	0.0%	4.8%	12.5%	0.0%	44.4%	0.0%	0.0%	0.0%	0.0%	4.9%		0.0%	3.2%		0.0%	11.1%
- Pat Acad	9.4%	16.3%	8.7%	5.6%	9.1%	70.0%	0.0%	23.8%								3.3%		0.0%	3.2%		11.1%	0.0%
- WED	39.6%	37.5%	26.1%	38.9%	36.4%	30.0%	70.0%	38.1%	37.5%	60.0%	22.2%	33.3%	20.0%	0.0%	71.4%	41.0%		100.0%	35.5%		33.3%	44.4%
- Other PTO	21.7%	21.2%	17.4%	27.8%	27.3%	10.0%	10.0%	23.8%	37.5%	40.0%	22.2%	0.0%	80.0%	66.7%	28.6%	14.8%		0.0%	22.6%		11.1%	5.6%
- Outside school	26.4%	19.2%	39.1%	16.7%	13.6%	0.0%	20.0%	14.3%	12.5%	0.0%	11.1%	66.7%	0.0%	33.3%	0.0%	44.3%		0.0%	45.2%		44.4%	50.0%
16j3. What skill levels did your Excel training cover?																						
- init/beginner's	87.4%	90.1%	90.9%	91.7%	94.4%	100.0%	80.0%	85.0%	82.1%	100.0%	85.7%	66.7%	75.0%	100.0%	71.4%	86.3%		66.7%	91.7%		71.4%	88.2%
- advanced	25.1%	18.7%	13.6%	25.0%	5.6%	11.1%	30.0%	30.0%	35.7%	0.0%	57.1%	66.7%	50.0%	0.0%	28.6%	31.4%		66.7%	33.3%		28.6%	23.5%
16j4. When did initial training on Excel begin relative to when you started using the system for your work?																						
- before	31.7%	44.7%	65.0%	66.7%	41.2%	44.4%	36.4%	18.2%	34.5%	40.0%	57.1%	33.3%	0.0%	100.0%	14.3%	9.6%		33.3%	7.4%		0.0%	12.5%
- same time	22.2%	14.9%	15.0%	0.0%	17.6%	33.3%	9.1%	18.2%	34.5%	40.0%	28.6%	33.3%	60.0%	0.0%	28.6%	26.9%		33.3%	33.3%		16.7%	18.8%
- after	46.0%	40.4%	20.0%	33.3%	41.2%	22.2%	54.5%	63.6%	31.0%	20.0%	14.3%	33.3%	40.0%	0.0%	57.1%	63.5%		33.3%	59.3%		83.3%	68.8%
16k1. Have you received formal training on MS Access?																						
- yes	20.1%	19.7%	8.8%	25.0%	20.0%	0.0%	28.6%	42.9%	45.5%	0.0%	100.0%	100.0%	0.0%	100.0%	0.0%	10.2%		0.0%	12.5%		12.5%	6.3%
- no	79.9%	80.3%	91.2%	75.0%	80.0%	100.0%	71.4%	57.1%	54.5%	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%	89.8%		100.0%	87.5%		87.5%	93.7%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16k2. Where did your MS Access training occur?																						
- PTO Univ	22.2%	29.6%	50.0%	50.0%	44.4%		0.0%	0.0%	14.3%		33.3%	0.0%	0.0%	0.0%	0.0%	20.0%			14.3%		0.0%	50.0%
- Pat Acad	3.7%	7.4%	0.0%	50.0%	11.1%		0.0%	0.0%														
- WED	38.9%	29.6%	50.0%	0.0%	11.1%		66.7%	28.6%	35.7%		16.7%	75.0%	0.0%	0.0%	100.0%	50.0%			57.1%		0.0%	50.0%
- Other PTO	22.2%	22.2%	0.0%	0.0%	22.2%		33.3%	42.9%	35.7%		50.0%	0.0%	100.0%	50.0%	0.0%	10.0%			14.3%		0.0%	0.0%
- Outside school	16.7%	11.1%	0.0%	0.0%	11.1%		0.0%	28.6%	14.3%		0.0%	25.0%	0.0%	50.0%	0.0%	30.0%			28.6%		100.0%	0.0%
16k3. What skill levels did your MS Access training cover?																						
- init/beginner's	93.6%	100.0%	100.0%	100.0%	100.0%		100.0%	100.0%	84.6%		80.0%	100.0%	0.0%	100.0%	100.0%	85.7%			80.0%			100.0%
- advanced	17.0%	4.2%	20.0%	0.0%	0.0%		0.0%	0.0%	38.5%		60.0%	25.0%	100.0%	0.0%	0.0%	28.6%			40.0%			0.0%
16k4. When did initial training on MS Access begin relative to when you started using the system for your work?																						
- before	57.1%	72.7%	83.3%	100.0%	71.4%		50.0%	60.0%	41.7%		60.0%	25.0%	0.0%	100.0%	0.0%	33.3%			0.0%			100.0%
- same time	14.3%	13.6%	16.7%	0.0%	0.0%		0.0%	40.0%	16.7%		0.0%	50.0%	0.0%	0.0%	0.0%	16.7%			25.0%			0.0%
- after	28.6%	13.6%	0.0%	0.0%	28.6%		50.0%	0.0%	41.7%		40.0%	25.0%	100.0%	0.0%	100.0%	50.0%			75.0%			0.0%
16l1. Have you received formal training on PowerPoint?																						
- yes	15.0%	12.6%	10.6%	33.3%	25.0%	0.0%	9.1%	5.6%	14.3%	0.0%	33.3%	33.3%	0.0%		25.0%	19.8%		50.0%	27.8%		11.1%	13.3%
- no	85.0%	87.4%	89.4%	66.7%	75.0%	100.0%	90.9%	94.4%	85.7%	100.0%	66.7%	66.7%	100.0%		75.0%	80.2%		50.0%	72.2%		88.9%	86.7%
16l2. Where did your PowerPoint training occur?																						
- PTO Univ	7.1%	7.4%	0.0%	0.0%	28.6%	0.0%	0.0%	0.0%	20.0%		33.3%	0.0%			0.0%	5.0%		0.0%	8.3%		0.0%	0.0%
- Pat Acad	1.8%	3.7%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%														
- WED	51.8%	44.4%	42.9%	60.0%	28.6%	50.0%	100.0%	25.0%	40.0%		0.0%	100.0%			100.0%	55.0%		100.0%	41.7%		0.0%	100.0%
- Other PTO	14.3%	11.1%	14.3%	20.0%	0.0%	0.0%	0.0%	25.0%	40.0%		66.7%	0.0%			0.0%	15.0%		0.0%	16.7%		50.0%	0.0%
- Outside school	26.8%	33.3%	42.9%	20.0%	28.6%	50.0%	0.0%	50.0%								30.0%		0.0%	41.7%		50.0%	0.0%
16l3. What skill levels did your PowerPoint training cover?																						
- init/beginner's	80.0%	88.0%	85.7%	75.0%	85.7%	100.0%	100.0%	100.0%	60.0%		66.7%	100.0%			0.0%	81.3%		0.0%	80.0%		100.0%	100.0%
- advanced	24.0%	12.0%	14.3%	25.0%	14.3%	0.0%	0.0%	0.0%	60.0%		66.7%	0.0%			100.0%	25.0%		100.0%	30.0%		0.0%	0.0%
16l4. When did initial training on PowerPoint begin relative to when you started using the system for your work?																						
- before	51.0%	62.5%	55.6%	66.7%	50.0%	100.0%	100.0%	50.0%	60.0%		100.0%	0.0%			0.0%	29.4%		0.0%	36.4%		0.0%	25.0%
- same time	26.5%	16.7%	33.3%	0.0%	16.7%	0.0%	0.0%	0.0%	20.0%		0.0%	100.0%			0.0%	41.2%		100.0%	27.3%		0.0%	75.0%
- after	22.4%	20.8%	11.1%	33.3%	33.3%	0.0%	0.0%	50.0%	20.0%		0.0%	0.0%			100.0%	29.4%		0.0%	36.4%		100.0%	0.0%
16m1. Have you received formal training on Action Writer?																						
- yes	65.3%	66.2%	68.0%	75.0%	66.7%	25.0%	0.0%	61.1%	50.0%	0.0%					100.0%							
- no	34.7%	33.8%	32.0%	25.0%	33.3%	75.0%	100.0%	38.9%	50.0%	100.0%					0.0%							

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16m2. Where did your Action Writer training occur?																						
- PTO Univ	2.4%	2.5%	2.6%	0.0%	0.0%	0.0%	0.0%	2.8%														
- Pat Acad	65.6%	66.6%	69.0%	0.0%	33.3%	40.0%	0.0%	69.4%														
- WED	0.9%	0.3%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%								100.0%			100.0%			100.0%
- Other PTO	31.5%	31.0%	29.9%	50.0%	66.7%	50.0%	50.0%	27.8%														
- Outside school	1.5%	1.5%	0.7%	50.0%	0.0%	0.0%	50.0%	0.0%														
16m3. What skill levels did your Action Writer training cover?																						
- init/beginner's	96.2%	96.1%	96.1%	100.0%	66.7%	100.0%	100.0%	97.0%								100.0%			100.0%			100.0%
- advanced	6.3%	6.6%	7.0%	0.0%	33.3%	0.0%	0.0%	3.0%														
16m4. When did initial training on Action Writer begin relative to when you started using the system for your work?																						
- before	30.4%	31.1%	30.8%	50.0%	25.0%	40.0%	0.0%	32.4%														
- same time	31.9%	31.1%	30.0%	50.0%	75.0%	40.0%	100.0%	27.0%								50.0%			0.0%			100.0%
- after	37.7%	37.7%	39.2%	0.0%	0.0%	20.0%	0.0%	40.5%								50.0%			100.0%			0.0%
16n1. Have you received formal training on PCT?																						
- yes	30.2%	30.7%	31.6%	50.0%	42.9%	37.5%	50.0%	18.2%														
- no	69.8%	69.3%	68.4%	50.0%	57.1%	62.5%	50.0%	81.8%														
16n2. Where did your PCT training occur?																						
- PTO Univ	0.7%	0.7%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%														
- Pat Acad	43.2%	44.4%	48.7%	0.0%	0.0%	33.3%	0.0%	30.8%														
- WED	0.0%																					
- Other PTO	56.1%	54.8%	49.6%	100.0%	100.0%	66.7%	100.0%	76.9%								100.0%						100.0%
- Outside school	1.4%	1.5%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%														
16n3. What skill levels did your PCT training cover?																						
- init/beginner's	93.3%	93.3%	93.1%	100.0%	100.0%	100.0%	50.0%	100.0%														
- advanced	17.5%	17.6%	15.7%	0.0%	100.0%	33.3%	100.0%	10.0%														
16n4. When did initial training on PCT begin relative to when you started using the system for your work?																						
- before	24.4%	24.6%	26.2%	0.0%	0.0%	0.0%	100.0%	15.4%														
- same time	26.8%	26.2%	23.3%	100.0%	25.0%	66.7%	0.0%	38.5%														
- after	48.8%	49.2%	50.5%	0.0%	75.0%	33.3%	0.0%	46.2%														
16o1. Have you received formal training on ID Manual?																						
- yes	33.1%	6.5%	5.4%	50.0%	0.0%	0.0%		0.0%	46.8%	48.5%		25.0%	20.0%	0.0%	100.0%	50.0%	100.0%		0.0%			
- no	66.9%	93.5%	94.6%	50.0%	100.0%	100.0%		100.0%	53.2%	51.5%		75.0%	80.0%	100.0%	0.0%	50.0%	0.0%		100.0%			

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16o2. Where did your ID Manual training occur?																						
- PTO Univ	1.9%								2.4%	2.9%		0.0%	0.0%	0.0%	0.0%							
- Pat Acad	3.8%	40.0%	50.0%	0.0%																		
- WED	5.8%	20.0%	0.0%	100.0%					4.8%	2.9%		0.0%	0.0%	0.0%	25.0%							
- Other PTO	84.6%	40.0%	50.0%	0.0%					88.1%	91.4%		100.0%	100.0%	100.0%	50.0%							
- Outside school	3.8%								4.8%	2.9%		0.0%	0.0%	0.0%	25.0%							
16o3. What skill levels did your ID Manual training cover?																						
- init/beginner's	95.8%	100.0%	100.0%	100.0%					95.0%	97.1%		100.0%	100.0%		75.0%							
- advanced	4.2%								5.0%	2.9%		0.0%	0.0%		25.0%							
16o4. When did initial training on ID Manual begin relative to when you started using the system for your work?																						
- before	37.0%	40.0%	50.0%	0.0%					33.3%	31.0%		0.0%	0.0%	100.0%	50.0%	50.0%	100.0%					0.0%
- same time	30.4%	40.0%	25.0%	100.0%					30.6%	24.1%		100.0%	100.0%	0.0%	50.0%	50.0%	0.0%					100.0%
- after	32.6%	20.0%	25.0%	0.0%					36.1%	44.8%		0.0%	0.0%	0.0%	0.0%							
16p1. Have you received formal training on TMEP?																						
- yes	11.5%								13.6%	11.8%		0.0%	0.0%	100.0%	40.0%	33.3%	100.0%				0.0%	
- no	88.5%								86.4%	88.2%		100.0%	100.0%	0.0%	60.0%	66.7%	0.0%				100.0%	
16p2. Where did your TMEP training occur?																						
- PTO Univ	11.8%								12.5%	16.7%		0.0%		0.0%	0.0%							
- Pat Acad	0.0%																					
- WED	5.9%								6.3%	8.3%		0.0%		0.0%	0.0%							
- Other PTO	82.4%								87.5%	83.3%		100.0%		100.0%	100.0%							
- Outside school	5.9%																					
16p3. What skill levels did your TMEP training cover?																						
- init/beginner's	86.7%								85.7%	90.9%		100.0%			50.0%							
- advanced	13.3%								14.3%	9.1%		0.0%			50.0%							
16p4. When did initial training on TMEP begin relative to when you started using the system for your work?																						
- before	46.7%								46.2%	57.1%		0.0%		100.0%	25.0%							
- same time	40.0%								38.5%	28.6%		100.0%		0.0%	50.0%							
- after	13.3%								15.4%	14.3%		0.0%		0.0%	25.0%							
16q1. Have you received formal training on Desktop procurement?																						
- yes	81.0%	72.7%	0.0%	0.0%	100.0%			80.0%	100.0%			100.0%			100.0%	85.7%		100.0%	92.3%		80.0%	66.7%
- no	19.0%	27.3%	100.0%	100.0%	0.0%			20.0%	0.0%			0.0%			0.0%	14.3%		0.0%	7.7%		20.0%	33.3%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16q2. Where did your Desktop procurement training occur?																						
- PTO Univ	1.5%																					
- Pat Acad	4.4%	7.7%	50.0%		0.0%		0.0%	0.0%								2.5%		0.0%	3.8%		0.0%	0.0%
- WED	33.8%	46.2%	0.0%		100.0%		0.0%	20.0%	55.6%	0.0%	100.0%	100.0%			33.3%	27.5%		100.0%	15.4%		100.0%	22.2%
- Other PTO	58.8%	46.2%	50.0%		0.0%		100.0%	80.0%	44.4%	100.0%	0.0%	0.0%			66.7%	67.5%		0.0%	76.9%		0.0%	77.8%
- Outside school	4.4%															7.5%		0.0%	7.7%		0.0%	11.1%
16q3. What skill levels did your Desktop procurement training cover?																						
- init/beginner's	92.3%	91.7%	50.0%		100.0%		100.0%	100.0%	88.9%	100.0%	100.0%	66.7%			100.0%	92.3%		100.0%	88.0%		100.0%	100.0%
- advanced	24.6%	8.3%	50.0%		0.0%		0.0%	0.0%	11.1%	0.0%	0.0%	33.3%			0.0%	35.9%		33.3%	32.0%		0.0%	55.6%
16q4. When did initial training on Desktop procurement begin relative to when you started using the system for your work?																						
- before	64.2%	71.4%	0.0%		100.0%		100.0%	80.0%	57.1%		100.0%	66.7%			33.3%	63.4%		33.3%	70.4%		50.0%	55.6%
- same time	20.9%	14.3%	66.7%		0.0%		0.0%	0.0%								26.8%		33.3%	22.2%		50.0%	33.3%
- after	14.9%	14.3%	33.3%		0.0%		0.0%	20.0%	42.9%		0.0%	33.3%			66.7%	9.8%		33.3%	7.4%		0.0%	11.1%
16r1. Have you received formal training on FFS?																						
- yes	77.4%	81.8%	0.0%		100.0%		100.0%	75.0%	75.0%		0.0%	100.0%			100.0%	79.5%		50.0%	78.3%		80.0%	88.9%
- no	22.6%	18.2%	100.0%		0.0%		0.0%	25.0%	25.0%		100.0%	0.0%			0.0%	20.5%		50.0%	21.7%		20.0%	11.1%
16r2. Where did your FFS training occur?																						
- PTO Univ	0.0%																					
- Pat Acad	0.0%																					
- WED	34.3%	38.5%		0.0%	83.3%		0.0%	0.0%	50.0%	0.0%	100.0%	100.0%		0.0%	33.3%	28.9%		100.0%	21.1%		75.0%	8.3%
- Other PTO	62.7%	53.8%		100.0%	0.0%		100.0%	100.0%	50.0%	100.0%	0.0%	0.0%		100.0%	66.7%	68.4%		0.0%	73.7%		25.0%	91.7%
- Outside school	3.0%	7.7%		0.0%	16.7%		0.0%	0.0%								2.6%		0.0%	5.3%		0.0%	0.0%
16r3. What skill levels did your FFS training cover?																						
- init/beginner's	96.7%	100.0%			100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%	100.0%	94.6%		100.0%	89.5%		100.0%	100.0%
- advanced	19.7%	8.3%			0.0%		33.3%	0.0%								29.7%		33.3%	36.8%		0.0%	27.3%
16r4. When did initial training on FFS begin relative to when you started using the system for your work?																						
- before	61.5%	78.6%	0.0%		71.4%		100.0%	100.0%	42.9%		100.0%	0.0%		100.0%	33.3%	57.9%		33.3%	55.0%		50.0%	72.7%
- same time	23.1%	14.3%	100.0%		14.3%		0.0%	0.0%	14.3%		0.0%	0.0%		0.0%	33.3%	28.9%		33.3%	35.0%		25.0%	18.2%
- after	15.4%	7.1%	0.0%		14.3%		0.0%	0.0%	42.9%		0.0%	100.0%		0.0%	33.3%	13.2%		33.3%	10.0%		25.0%	9.1%
16s1. Have you received formal training on CRDA?																						
- yes	33.3%	54.5%	0.0%	71.4%	0.0%			100.0%								20.0%		100.0%	0.0%		0.0%	0.0%
- no	66.7%	45.5%	100.0%	28.6%	100.0%			0.0%								80.0%		0.0%	100.0%		100.0%	100.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
16s2. Where did your CRDA training occur?																						
- PTO Univ	0.0%																					
- Pat Acad	0.0%																					
- WED	0.0%																					
- Other PTO	100.0%	100.0%		100.0%				100.0%								100.0%		100.0%		100.0%		
- Outside school	0.0%																					
16s3. What skill levels did your CRDA training cover?																						
- init/beginner's	75.0%	80.0%		75.0%				100.0%								50.0%		0.0%		100.0%		
- advanced	25.0%															50.0%		100.0%		0.0%		
16s4. When did initial training on CRDA begin relative to when you started using the system for your work?																						
- before																						
- same time	75.0%	85.7%	100.0%	80.0%				100.0%								66.7%		0.0%	100.0%	100.0%		
- after		14.3%	0.0%	20.0%				0.0%								33.3%		100.0%	0.0%	0.0%		
17a1. APS Text - availability for your use																						
- dissatisfied	21.5%	23.0%	24.0%		0.0%	26.7%	14.3%	20.5%	33.3%	0.0%					50.0%							
- satisfied	78.5%	77.0%	76.0%		100.0%	73.3%	85.7%	79.5%	66.7%	100.0%					50.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
17a2. APS Text - speed of response																						
- dissatisfied	39.7%	41.7%	44.8%		37.5%	37.5%	0.0%	30.8%	100.0%	100.0%					100.0%	7.7%	0.0%	50.0%	0.0%	0.0%	0.0%	9.1%
- satisfied	60.3%	58.3%	55.2%		62.5%	62.5%	100.0%	69.2%								92.3%	100.0%	50.0%	100.0%	100.0%	100.0%	90.9%
17a3. APS Text - overall ease of use																						
- dissatisfied	27.3%	26.7%	24.3%		37.5%	37.5%	28.6%	35.4%	66.7%	0.0%					100.0%	34.6%	0.0%	50.0%	28.6%	0.0%	25.0%	45.5%
- satisfied	72.7%	73.3%	75.7%		62.5%	62.5%	71.4%	64.6%	33.3%	100.0%					0.0%	65.4%	100.0%	50.0%	71.4%	100.0%	75.0%	54.5%
17a4. APS Text - reliability (freedom from downtime, problems)																						
- dissatisfied	36.0%	37.9%	38.7%		37.5%	56.3%	16.7%	31.6%	33.3%	0.0%					50.0%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%
- satisfied	64.0%	62.1%	61.3%		62.5%	43.8%	83.3%	68.4%	66.7%	100.0%					50.0%	96.2%	100.0%	100.0%	100.0%	100.0%	100.0%	90.9%
17a5. APS Text - availability of training																						
- dissatisfied	31.8%	32.1%	29.9%		42.9%	20.0%	60.0%	42.5%	50.0%	0.0%					100.0%	28.6%	0.0%	0.0%	16.7%	0.0%	25.0%	50.0%
- satisfied	68.2%	67.9%	70.1%		57.1%	80.0%	40.0%	57.5%	50.0%	100.0%					0.0%	71.4%	100.0%	100.0%	83.3%	100.0%	75.0%	50.0%
17a6. APS Text - overall quality of training																						
- dissatisfied	22.5%	21.8%	21.3%		14.3%	20.0%	20.0%	25.7%	50.0%	0.0%					100.0%	31.6%	0.0%	100.0%	16.7%	0.0%	25.0%	50.0%
- satisfied	77.5%	78.2%	78.7%		85.7%	80.0%	80.0%	74.3%	50.0%	100.0%					0.0%	68.4%	100.0%	0.0%	83.3%	100.0%	75.0%	50.0%
17a7. APS Text - ability to work with other applications																						
- dissatisfied	56.9%	56.8%	56.9%		50.0%	46.2%	40.0%	61.1%								52.6%	0.0%	50.0%	50.0%	0.0%	33.3%	83.3%
- satisfied	43.1%	43.2%	43.1%		50.0%	53.8%	60.0%	38.9%								47.4%	100.0%	50.0%	50.0%	100.0%	66.7%	16.7%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17a8. APS Text - extent meets overall needs																						
- dissatisfied	30.0%	30.8%	31.0%		0.0%	37.5%	16.7%	33.8%	100.0%						100.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%
- satisfied	70.0%	69.2%	69.0%		100.0%	62.5%	83.3%	66.2%								92.3%	100.0%	100.0%	100.0%	100.0%	100.0%	81.8%
17b1. APS Image - availability for your use																						
- dissatisfied	32.4%	34.1%	35.1%	0.0%	0.0%	28.6%	25.0%	38.1%								15.0%	0.0%		33.3%	0.0%	0.0%	14.3%
- satisfied	67.6%	65.9%	64.9%	100.0%	100.0%	71.4%	75.0%	61.9%								85.0%	100.0%		66.7%	100.0%	100.0%	85.7%
17b2. APS Image- speed of response																						
- dissatisfied	62.1%	65.0%	69.2%	0.0%	20.0%	50.0%	33.3%	61.9%								26.3%	0.0%		60.0%	0.0%	0.0%	28.6%
- satisfied	37.9%	35.0%	30.8%	100.0%	80.0%	50.0%	66.7%	38.1%								73.7%	100.0%		40.0%	100.0%	100.0%	71.4%
17b3. APS Image- overall ease of use																						
- dissatisfied	38.0%	37.9%	36.2%	0.0%	20.0%	66.7%	25.0%	43.9%								31.6%	0.0%		40.0%	0.0%	0.0%	57.1%
- satisfied	62.0%	62.1%	63.8%	100.0%	80.0%	33.3%	75.0%	56.1%								68.4%	100.0%		60.0%	100.0%	100.0%	42.9%
17b4. APS Image- reliability (freedom from downtime, problems)																						
- dissatisfied	53.5%	56.9%	56.8%	0.0%	20.0%	100.0%	50.0%	57.1%								26.3%	50.0%		20.0%	50.0%	0.0%	28.6%
- satisfied	46.5%	43.1%	43.2%	100.0%	80.0%	0.0%	50.0%	42.9%								73.7%	50.0%		80.0%	50.0%	100.0%	71.4%
17b5. APS Image- availability of training																						
- dissatisfied	37.3%	35.3%	33.6%	100.0%	25.0%	33.3%	75.0%	36.8%								47.1%	50.0%		40.0%	0.0%	33.3%	80.0%
- satisfied	62.7%	64.7%	66.4%	0.0%	75.0%	66.7%	25.0%	63.2%								52.9%	50.0%		60.0%	100.0%	66.7%	20.0%
17b6. APS Image- overall quality of training																						
- dissatisfied	22.6%	18.9%	16.7%		0.0%	33.3%	75.0%	20.0%								50.0%	50.0%		40.0%	0.0%	33.3%	100.0%
- satisfied	77.4%	81.1%	83.3%		100.0%	66.7%	25.0%	80.0%								50.0%	50.0%		60.0%	100.0%	66.7%	0.0%
17b7. APS Image- ability to work with other applications																						
- dissatisfied	66.9%	67.8%	69.5%		33.3%	80.0%	0.0%	67.7%								52.9%	50.0%		40.0%	0.0%	33.3%	100.0%
- satisfied	33.1%	32.2%	30.5%		66.7%	20.0%	100.0%	32.3%								47.1%	50.0%		60.0%	100.0%	66.7%	0.0%
17b8. APS Image- extent meets overall needs																						
- dissatisfied	37.3%	39.7%	37.7%	0.0%	0.0%	66.7%	25.0%	50.0%								15.8%	0.0%		20.0%	0.0%	0.0%	28.6%
- satisfied	62.7%	60.3%	62.3%	100.0%	100.0%	33.3%	75.0%	50.0%								84.2%	100.0%		80.0%	100.0%	100.0%	71.4%
17c1. PALM - availability for your use																						
- dissatisfied	16.7%	16.7%	17.3%	23.4%	3.6%	10.7%	9.1%	18.7%								23.3%	0.0%	33.3%	16.7%	0.0%	42.9%	23.5%
- satisfied	83.3%	83.3%	82.7%	76.6%	96.4%	89.3%	90.9%	81.3%	100.0%	100.0%	100.0%	100.0%			100.0%	76.7%	100.0%	66.7%	83.3%	100.0%	57.1%	76.5%
17c2. PALM - speed of response																						
- dissatisfied	22.4%	22.5%	20.6%	19.6%	29.6%	39.3%	23.8%	24.7%	75.0%	100.0%	0.0%	100.0%			100.0%	20.9%	0.0%	33.3%	9.1%	0.0%	28.6%	27.8%
- satisfied	77.6%	77.5%	79.4%	80.4%	70.4%	60.7%	76.2%	75.3%	25.0%	0.0%	100.0%	0.0%			0.0%	79.1%	100.0%	66.7%	90.9%	100.0%	71.4%	72.2%
17c3. PALM - overall ease of use																						
- dissatisfied	39.0%	39.2%	43.2%	15.6%	18.5%	32.1%	19.0%	48.6%	50.0%	100.0%	0.0%	0.0%			100.0%	33.3%	50.0%	33.3%	18.2%	0.0%	57.1%	33.3%
- satisfied	61.0%	60.8%	56.8%	84.4%	81.5%	67.9%	81.0%	51.4%	50.0%	0.0%	100.0%	100.0%			0.0%	66.7%	50.0%	66.7%	81.8%	100.0%	42.9%	66.7%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17c4. PALM - reliability (freedom from downtime, problems)																						
- dissatisfied	42.2%	43.2%	42.9%	37.8%	40.7%	60.7%	33.3%	45.2%	50.0%	0.0%	0.0%	100.0%			100.0%	28.6%	0.0%	33.3%	18.2%	100.0%	28.6%	33.3%
- satisfied	57.8%	56.8%	57.1%	62.2%	59.3%	39.3%	66.7%	54.8%	50.0%	100.0%	100.0%	0.0%			0.0%	71.4%	100.0%	66.7%	81.8%	0.0%	71.4%	66.7%
17c5. PALM - availability of training																						
- dissatisfied	66.4%	66.5%	68.1%	54.1%	61.1%	61.5%	68.8%	68.4%	75.0%	0.0%	100.0%	100.0%			100.0%	60.0%	100.0%	50.0%	45.5%	0.0%	60.0%	77.8%
- satisfied	33.6%	33.5%	31.9%	45.9%	38.9%	38.5%	31.3%	31.6%	25.0%	100.0%	0.0%	0.0%			0.0%	40.0%	0.0%	50.0%	54.5%	100.0%	40.0%	22.2%
17c6. PALM - overall quality of training																						
- dissatisfied	52.6%	52.9%	54.4%	46.9%	40.0%	50.0%	57.1%	54.1%	50.0%	0.0%	100.0%					52.2%	100.0%	50.0%	37.5%	0.0%	33.3%	71.4%
- satisfied	47.4%	47.1%	45.6%	53.1%	60.0%	50.0%	42.9%	45.9%	50.0%	100.0%	0.0%					47.8%	0.0%	50.0%	62.5%	100.0%	66.7%	28.6%
17c7. PALM - ability to work with other applications																						
- dissatisfied	68.0%	68.8%	71.1%	44.7%	52.9%	89.5%	69.2%	76.2%	66.7%	50.0%	100.0%					65.6%	50.0%	66.7%	44.4%	0.0%	71.4%	90.0%
- satisfied	32.0%	31.2%	28.9%	55.3%	47.1%	10.5%	30.8%	23.8%	33.3%	50.0%	0.0%					34.4%	50.0%	33.3%	55.6%	100.0%	28.6%	10.0%
17c8. PALM - extent meets overall needs																						
- dissatisfied	30.6%	31.7%	33.4%	25.0%	22.2%	28.6%	22.7%	34.3%	20.0%	0.0%	0.0%	0.0%			100.0%	24.4%	0.0%	33.3%	18.2%	0.0%	28.6%	29.4%
- satisfied	69.4%	68.3%	66.6%	75.0%	77.8%	71.4%	77.3%	65.7%	80.0%	100.0%	100.0%	100.0%			0.0%	75.6%	100.0%	66.7%	81.8%	100.0%	71.4%	70.6%
17d1. X-Search - availability for your use																						
- dissatisfied	19.8%	44.4%	60.0%	0.0%	0.0%		0.0%	100.0%	18.0%	19.1%	12.5%	16.7%	28.6%	0.0%	14.3%	25.0%	100.0%		14.3%		0.0%	50.0%
- satisfied	80.2%	55.6%	40.0%	100.0%	100.0%		100.0%	0.0%	82.0%	80.9%	87.5%	83.3%	71.4%	100.0%	85.7%	75.0%	0.0%		85.7%		100.0%	50.0%
17d2. X-Search - speed of response																						
- dissatisfied	34.4%	33.3%	66.7%	0.0%	0.0%		0.0%		34.0%	44.1%	0.0%	0.0%	0.0%	0.0%	50.0%	18.2%	0.0%		16.7%		50.0%	0.0%
- satisfied	65.6%	66.7%	33.3%	100.0%	100.0%		100.0%		66.0%	55.9%	100.0%	100.0%	100.0%	100.0%	50.0%	81.8%	100.0%		83.3%		50.0%	100.0%
17d3. X-Search - overall ease of use																						
- dissatisfied	20.3%	33.3%	50.0%	0.0%	0.0%		100.0%	0.0%	20.4%	24.6%	0.0%	16.7%	0.0%	0.0%	33.3%	10.0%	0.0%		20.0%		0.0%	0.0%
- satisfied	79.7%	66.7%	50.0%	100.0%	100.0%		0.0%	100.0%	79.6%	75.4%	100.0%	83.3%	100.0%	100.0%	66.7%	90.0%	100.0%		80.0%		100.0%	100.0%
17d4. X-Search - reliability (freedom from downtime, problems)																						
- dissatisfied	28.1%	20.0%	50.0%	0.0%	0.0%		0.0%		26.5%	33.3%	0.0%	0.0%	16.7%	0.0%	33.3%	20.0%	100.0%		20.0%		0.0%	0.0%
- satisfied	71.9%	80.0%	50.0%	100.0%	100.0%		100.0%		73.5%	66.7%	100.0%	100.0%	83.3%	100.0%	66.7%	80.0%	0.0%		80.0%		100.0%	100.0%
17d5. X-Search - availability of training																						
- dissatisfied	28.2%	60.0%	50.0%	100.0%	0.0%		100.0%		23.9%	20.3%	28.6%	50.0%	28.6%	0.0%	40.0%	60.0%	0.0%		100.0%		0.0%	100.0%
- satisfied	71.8%	40.0%	50.0%	0.0%	100.0%		0.0%		76.1%	79.7%	71.4%	50.0%	71.4%	100.0%	60.0%	40.0%	100.0%		0.0%		100.0%	0.0%
17d6. X-Search - overall quality of training																						
- dissatisfied	28.7%	25.0%	0.0%		0.0%		100.0%		24.4%	24.6%	33.3%	40.0%	16.7%	0.0%	25.0%	60.0%	0.0%		100.0%		0.0%	100.0%
- satisfied	71.3%	75.0%	100.0%		100.0%		0.0%		75.6%	75.4%	66.7%	60.0%	83.3%	100.0%	75.0%	40.0%	100.0%		0.0%		100.0%	0.0%
17d7. X-Search - ability to work with other applications																						
- dissatisfied	67.5%	50.0%	100.0%	0.0%	0.0%		100.0%		68.3%	77.3%	0.0%	50.0%	40.0%	100.0%	60.0%	40.0%			50.0%		0.0%	100.0%
- satisfied	32.5%	50.0%	0.0%	100.0%	100.0%		0.0%		31.7%	22.7%	100.0%	50.0%	60.0%	0.0%	40.0%	60.0%			50.0%		100.0%	0.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17d8. X-Search - extent meets overall needs																						
- dissatisfied	30.4%	20.0%	50.0%	0.0%	0.0%		0.0%		30.1%	37.3%	0.0%	20.0%	16.7%	0.0%	16.7%	12.5%	0.0%		25.0%		0.0%	0.0%
- satisfied	69.6%	80.0%	50.0%	100.0%	100.0%		100.0%		69.9%	62.7%	100.0%	80.0%	83.3%	100.0%	83.3%	87.5%	100.0%		75.0%		100.0%	100.0%
17e1. TRAM - availability for your use																						
- dissatisfied	24.3%								24.8%	28.4%	18.8%	25.0%	33.3%	0.0%	12.5%	16.7%	100.0%	0.0%	0.0%		0.0%	33.3%
- satisfied	75.7%								75.2%	71.6%	81.3%	75.0%	66.7%	100.0%	87.5%	83.3%	0.0%	100.0%	100.0%		100.0%	66.7%
17e2. TRAM - speed of response																						
- dissatisfied	15.3%								15.7%	17.9%	13.3%	10.0%	20.0%	0.0%	14.3%	33.3%	100.0%	100.0%	20.0%		0.0%	33.3%
- satisfied	84.7%								84.3%	82.1%	86.7%	90.0%	80.0%	100.0%	85.7%	66.7%	0.0%	0.0%	80.0%		100.0%	66.7%
17e3. TRAM - overall ease of use																						
- dissatisfied	32.9%								30.3%	38.2%	6.7%	20.0%	20.0%	0.0%	42.9%	33.3%	100.0%	0.0%	20.0%		50.0%	33.3%
- satisfied	67.1%								69.7%	61.8%	93.3%	80.0%	80.0%	100.0%	57.1%	66.7%	0.0%	100.0%	80.0%		50.0%	66.7%
17e4. TRAM - reliability (freedom from downtime, problems)																						
- dissatisfied	31.9%								32.1%	45.6%	13.3%	10.0%	0.0%	0.0%	14.3%	25.0%	100.0%	0.0%	20.0%		50.0%	0.0%
- satisfied	68.1%								67.9%	54.4%	86.7%	90.0%	100.0%	100.0%	85.7%	75.0%	0.0%	100.0%	80.0%		50.0%	100.0%
17e5. TRAM - availability of training																						
- dissatisfied	50.8%								47.9%	51.8%	38.5%	37.5%	57.1%	0.0%	57.1%	66.7%	100.0%	0.0%	75.0%		0.0%	100.0%
- satisfied	49.2%								52.1%	48.2%	61.5%	62.5%	42.9%	100.0%	42.9%	33.3%	0.0%	100.0%	25.0%		100.0%	0.0%
17e6. TRAM - overall quality of training																						
- dissatisfied	45.9%								43.8%	53.6%	33.3%	25.0%	33.3%	0.0%	25.0%	57.1%	100.0%	0.0%	66.7%		0.0%	100.0%
- satisfied	54.1%								56.2%	46.4%	66.7%	75.0%	66.7%	100.0%	75.0%	42.9%	0.0%	100.0%	33.3%		100.0%	0.0%
17e7. TRAM - ability to work with other applications																						
- dissatisfied	55.8%								55.3%	70.0%	7.7%	42.9%	40.0%	75.0%	71.4%	50.0%	100.0%	100.0%	25.0%		0.0%	100.0%
- satisfied	44.2%								44.7%	30.0%	92.3%	57.1%	60.0%	25.0%	28.6%	50.0%	0.0%	0.0%	75.0%		100.0%	0.0%
17e8. TRAM - extent meets overall needs																						
- dissatisfied	30.6%								29.5%	40.6%	6.7%	0.0%	33.3%	0.0%	28.6%	30.0%	100.0%	100.0%	20.0%		0.0%	0.0%
- satisfied	69.4%								70.5%	59.4%	93.3%	100.0%	66.7%	100.0%	71.4%	70.0%	0.0%	0.0%	80.0%		100.0%	100.0%
17f1. Copending - availability for your use																						
- dissatisfied	19.0%								19.6%	22.4%		0.0%	0.0%		0.0%							
- satisfied	81.0%								80.4%	77.6%		100.0%	100.0%		100.0%	100.0%			100.0%			
17f2. Copending - speed of response																						
- dissatisfied	6.7%								7.4%	8.2%		0.0%	0.0%		0.0%							
- satisfied	93.3%								92.6%	91.8%		100.0%	100.0%		100.0%	100.0%			100.0%			
17f3. Copending - overall ease of use																						
- dissatisfied	14.5%								14.8%	16.0%		0.0%	0.0%		0.0%							
- satisfied	85.5%								85.2%	84.0%		100.0%	100.0%		100.0%	100.0%			100.0%			

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17f4. Copending - reliability (freedom from downtime, problems)																						
- dissatisfied	28.3%								27.8%	30.6%		0.0%	0.0%		0.0%							
- satisfied	71.7%								72.2%	69.4%		100.0%	100.0%		100.0%	100.0%			100.0%			
17f5. Copending - availability of training																						
- dissatisfied	57.5%								54.1%	55.9%		0.0%	100.0%		0.0%							
- satisfied	42.5%								45.9%	44.1%		100.0%	0.0%		100.0%							
17f6. Copending - overall quality of training																						
- dissatisfied	61.1%								57.6%	60.0%		0.0%	100.0%		0.0%							
- satisfied	38.9%								42.4%	40.0%		100.0%	0.0%		100.0%							
17f7. Copending - ability to work with other applications																						
- dissatisfied	62.5%								62.9%	61.3%		100.0%	100.0%		50.0%							
- satisfied	37.5%								37.1%	38.7%		0.0%	0.0%		50.0%							
17f8. Copending - extent meets overall needs																						
- dissatisfied	25.0%								26.5%	28.9%		0.0%	0.0%		0.0%							
- satisfied	75.0%								73.5%	71.1%		100.0%	100.0%		100.0%	100.0%			100.0%			
17g1. E-Mail - availability for your use																						
- dissatisfied	4.0%	3.0%	3.3%	0.0%	2.6%	0.0%	3.7%	3.1%	1.8%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	8.2%	0.0%	0.0%	7.6%	50.0%	11.5%	7.5%
- satisfied	96.0%	97.0%	96.7%	100.0%	97.4%	100.0%	96.3%	96.9%	98.2%	97.1%	100.0%	100.0%	100.0%	100.0%	100.0%	91.8%	100.0%	100.0%	92.4%	50.0%	88.5%	92.5%
17g2. E-Mail - speed of response																						
- dissatisfied	11.6%	8.7%	8.5%	0.0%	2.8%	0.0%	11.1%	15.3%	9.1%	5.9%	7.7%	9.1%	16.7%	50.0%	12.5%	21.8%	0.0%	0.0%	28.1%	50.0%	19.2%	18.5%
- satisfied	88.4%	91.3%	91.5%	100.0%	97.2%	100.0%	88.9%	84.7%	90.9%	94.1%	92.3%	90.9%	83.3%	50.0%	87.5%	78.2%	100.0%	100.0%	71.9%	50.0%	80.8%	81.5%
17g3. E-Mail - overall ease of use																						
- dissatisfied	5.7%	6.7%	6.7%	0.0%	0.0%	0.0%	3.7%	13.3%	2.7%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	0.0%	4.7%	0.0%	7.7%	4.6%
- satisfied	94.3%	93.3%	93.3%	100.0%	100.0%	100.0%	96.3%	86.7%	97.3%	95.7%	100.0%	100.0%	100.0%	100.0%	100.0%	95.2%	100.0%	100.0%	95.3%	100.0%	92.3%	95.4%
17g4. E-Mail - reliability (freedom from downtime, problems)																						
- dissatisfied	8.3%	7.1%	7.0%	0.0%	5.6%	6.7%	7.4%	9.3%	8.2%	10.3%	0.0%	9.1%	0.0%	25.0%	0.0%	13.4%	0.0%	0.0%	9.4%	50.0%	11.5%	18.8%
- satisfied	91.7%	92.9%	93.0%	100.0%	94.4%	93.3%	92.6%	90.7%	91.8%	89.7%	100.0%	90.9%	100.0%	75.0%	100.0%	86.6%	100.0%	100.0%	90.6%	50.0%	88.5%	81.3%
17g5. E-Mail - availability of training																						
- dissatisfied	32.0%	33.9%	34.6%	6.3%	18.8%	20.7%	35.0%	47.0%	28.4%	32.1%	20.0%	18.2%	28.6%	25.0%	28.6%	27.2%	0.0%	0.0%	31.9%	0.0%	22.7%	28.6%
- satisfied	68.0%	66.1%	65.4%	93.8%	81.3%	79.3%	65.0%	53.0%	71.6%	67.9%	80.0%	81.8%	71.4%	75.0%	71.4%	72.8%	100.0%	100.0%	68.1%	100.0%	77.3%	71.4%
17g6. E-Mail - overall quality of training																						
- dissatisfied	23.4%	23.9%	24.6%	6.3%	8.3%	22.2%	26.7%	31.6%	25.3%	26.4%	20.0%	22.2%	28.6%	50.0%	16.7%	19.2%	0.0%	0.0%	21.1%	0.0%	6.7%	25.0%
- satisfied	76.6%	76.1%	75.4%	93.8%	91.7%	77.8%	73.3%	68.4%	74.7%	73.6%	80.0%	77.8%	71.4%	50.0%	83.3%	80.8%	100.0%	100.0%	78.9%	100.0%	93.3%	75.0%
17g7. E-Mail - ability to work with other applications																						
- dissatisfied	15.8%	17.7%	20.1%	5.3%	0.0%	13.0%	17.4%	21.4%	10.5%	11.9%	0.0%	22.2%	0.0%	25.0%	0.0%	13.2%	0.0%	0.0%	13.8%	50.0%	12.0%	13.5%
- satisfied	84.2%	82.3%	79.9%	94.7%	100.0%	87.0%	82.6%	78.6%	89.5%	88.1%	100.0%	77.8%	100.0%	75.0%	100.0%	86.8%	100.0%	100.0%	86.2%	50.0%	88.0%	86.5%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17g8. E-Mail - extent meets overall needs																						
- dissatisfied	7.7%	8.5%	8.8%	5.0%	0.0%	3.6%	3.8%	13.8%	3.7%	3.0%	0.0%	0.0%	16.7%	25.0%	0.0%	4.4%	0.0%	0.0%	4.7%	0.0%	7.7%	3.3%
- satisfied	92.3%	91.5%	91.2%	95.0%	100.0%	96.4%	96.2%	86.2%	96.3%	97.0%	100.0%	100.0%	83.3%	75.0%	100.0%	95.6%	100.0%	100.0%	95.3%	100.0%	92.3%	96.7%
17h1. MS Word - availability for your use																						
- dissatisfied	2.6%	3.3%	2.7%	9.1%	0.0%	0.0%	4.3%	5.1%	1.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	3.2%	0.0%	4.8%	2.0%
- satisfied	97.4%	96.7%	97.3%	90.9%	100.0%	100.0%	95.7%	94.9%	99.0%	98.4%	100.0%	100.0%	100.0%	100.0%	100.0%	97.2%	100.0%	100.0%	96.8%	100.0%	95.2%	98.0%
17h2. MS Word - speed of response																						
- dissatisfied	11.9%	8.8%	10.0%	0.0%	0.0%	0.0%	4.3%	18.2%	12.7%	14.5%	8.3%	0.0%	16.7%	50.0%	0.0%	16.7%	100.0%	0.0%	16.7%	0.0%	13.6%	18.4%
- satisfied	88.1%	91.2%	90.0%	100.0%	100.0%	100.0%	95.7%	81.8%	87.3%	85.5%	91.7%	100.0%	83.3%	50.0%	100.0%	83.3%	0.0%	100.0%	83.3%	100.0%	86.4%	81.6%
17h3. MS Word - ease of use																						
- dissatisfied	6.7%	7.6%	8.5%	0.0%	0.0%	12.5%	8.7%	10.7%	6.9%	7.9%	0.0%	0.0%	0.0%	25.0%	11.1%	3.7%	0.0%	0.0%	5.0%	0.0%	0.0%	4.2%
- satisfied	93.3%	92.4%	91.5%	100.0%	100.0%	87.5%	91.3%	89.3%	93.1%	92.1%	100.0%	100.0%	100.0%	75.0%	88.9%	96.3%	100.0%	100.0%	95.0%	100.0%	100.0%	95.8%
17h4. MS Word - reliability (freedom from downtime, problems)																						
- dissatisfied	6.8%	3.5%	4.3%	0.0%	0.0%	6.3%	4.3%	3.6%	14.6%	20.6%	0.0%	0.0%	16.7%	25.0%	0.0%	6.7%	100.0%	0.0%	5.0%	0.0%	0.0%	10.9%
- satisfied	93.2%	96.5%	95.7%	100.0%	100.0%	93.8%	95.7%	96.4%	85.4%	79.4%	100.0%	100.0%	83.3%	75.0%	100.0%	93.3%	0.0%	100.0%	95.0%	100.0%	100.0%	89.1%
17h5. MS Word - availability of training																						
- dissatisfied	29.4%	35.8%	45.9%	10.0%	15.4%	20.0%	29.4%	41.9%	24.5%	28.8%	9.1%	22.2%	28.6%	0.0%	25.0%	21.9%	0.0%	0.0%	26.0%	0.0%	17.6%	21.9%
- satisfied	70.6%	64.2%	54.1%	90.0%	84.6%	80.0%	70.6%	58.1%	75.5%	71.2%	90.9%	77.8%	71.4%	100.0%	75.0%	78.1%	100.0%	100.0%	74.0%	100.0%	82.4%	78.1%
17h6. MS Word - overall quality of training																						
- dissatisfied	21.8%	26.2%	31.3%	10.5%	5.3%	27.3%	18.2%	44.0%	22.7%	30.2%	9.1%	0.0%	28.6%	0.0%	12.5%	12.5%	0.0%	0.0%	15.4%	0.0%	0.0%	16.7%
- satisfied	78.2%	73.8%	68.8%	89.5%	94.7%	72.7%	81.8%	56.0%	77.3%	69.8%	90.9%	100.0%	71.4%	100.0%	87.5%	87.5%	100.0%	100.0%	84.6%	100.0%	100.0%	83.3%
17h7. MS Word - ability to work with other applications																						
- dissatisfied	9.8%	9.1%	7.0%	15.0%	3.7%	13.3%	10.0%	13.3%	10.2%	15.1%	0.0%	12.5%	0.0%	0.0%	0.0%	6.5%		0.0%	8.8%	0.0%	0.0%	7.5%
- satisfied	90.2%	90.9%	93.0%	85.0%	96.3%	86.7%	90.0%	86.7%	89.8%	84.9%	100.0%	87.5%	100.0%	100.0%	100.0%	93.5%		100.0%	91.2%	100.0%	100.0%	92.5%
17h8. MS Word - extent meets overall needs																						
- dissatisfied	7.1%	8.2%	11.7%	5.0%	0.0%	0.0%	4.5%	9.3%	8.2%	11.9%	0.0%	0.0%	16.7%	0.0%	0.0%	3.1%		0.0%	3.3%	0.0%	0.0%	4.7%
- satisfied	92.9%	91.8%	88.3%	95.0%	100.0%	100.0%	95.5%	90.7%	91.8%	88.1%	100.0%	100.0%	83.3%	100.0%	100.0%	96.9%		100.0%	96.7%	100.0%	100.0%	95.3%
17i1. Word Perfect - availability for your use																						
- dissatisfied	2.3%	2.0%	1.5%	12.0%	2.6%	0.0%	4.8%	1.1%	2.2%	0.0%	0.0%	14.3%	0.0%		0.0%	4.9%	0.0%	0.0%	7.1%	0.0%	0.0%	4.5%
- satisfied	97.7%	98.0%	98.5%	88.0%	97.4%	100.0%	95.2%	98.9%	97.8%	100.0%	100.0%	85.7%	100.0%		100.0%	95.1%	100.0%	100.0%	92.9%	100.0%	100.0%	95.5%
17i2. Word Perfect - speed of response																						
- dissatisfied	11.3%	10.0%	12.2%	0.0%	0.0%	0.0%	4.8%	12.5%	13.3%	19.0%	9.1%	14.3%	0.0%		0.0%	17.0%	0.0%	0.0%	23.1%	0.0%	10.0%	15.9%
- satisfied	88.7%	90.0%	87.8%	100.0%	100.0%	100.0%	95.2%	87.5%	86.7%	81.0%	90.9%	85.7%	100.0%		100.0%	83.0%	100.0%	100.0%	76.9%	100.0%	90.0%	84.1%
17i3. Word Perfect - ease of use																						
- dissatisfied	7.6%	7.5%	9.5%	0.0%	0.0%	10.7%	0.0%	5.6%	8.9%	14.3%	0.0%	14.3%	0.0%		0.0%	5.0%	0.0%	0.0%	2.5%	0.0%	11.1%	6.8%
- satisfied	92.4%	92.5%	90.5%	100.0%	100.0%	89.3%	100.0%	94.4%	91.1%	85.7%	100.0%	85.7%	100.0%		100.0%	95.0%	100.0%	100.0%	97.5%	100.0%	88.9%	93.2%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17i4. Word Perfect - reliability (freedom from downtime, problems)																						
- dissatisfied	7.4%	7.1%	8.1%	0.0%	0.0%	10.7%	0.0%	9.0%	8.9%	14.3%	0.0%	14.3%	0.0%		0.0%	5.2%	0.0%	0.0%	5.1%	0.0%	0.0%	7.3%
- satisfied	92.6%	92.9%	91.9%	100.0%	100.0%	89.3%	100.0%	91.0%	91.1%	85.7%	100.0%	85.7%	100.0%		100.0%	94.8%	100.0%	100.0%	94.9%	100.0%	100.0%	92.7%
17i5. Word Perfect - availability of training																						
- dissatisfied	28.3%	31.8%	34.3%	19.0%	16.1%	30.8%	29.4%	33.3%	25.6%	36.8%	0.0%	42.9%	20.0%		0.0%	15.4%	0.0%	0.0%	17.6%	0.0%	0.0%	19.4%
- satisfied	71.7%	68.2%	65.7%	81.0%	83.9%	69.2%	70.6%	66.7%	74.4%	63.2%	100.0%	57.1%	80.0%		100.0%	84.6%	100.0%	100.0%	82.4%	100.0%	100.0%	80.6%
17i6. Word Perfect - overall quality of training																						
- dissatisfied	20.9%	23.3%	25.7%	10.0%	8.3%	21.1%	16.7%	26.6%	17.1%	27.8%	0.0%	16.7%	20.0%		0.0%	15.3%	0.0%	0.0%	20.0%	0.0%	0.0%	16.7%
- satisfied	79.1%	76.7%	74.3%	90.0%	91.7%	78.9%	83.3%	73.4%	82.9%	72.2%	100.0%	83.3%	80.0%		100.0%	84.7%	100.0%	100.0%	80.0%	100.0%	100.0%	83.3%
17i7. Word Perfect - ability to work with other applications																						
- dissatisfied	17.2%	18.0%	18.2%	9.1%	10.7%	21.7%	15.8%	21.9%	13.9%	21.4%	0.0%	33.3%	0.0%		0.0%	13.8%	0.0%	0.0%	14.3%	0.0%	33.3%	11.1%
- satisfied	82.8%	82.0%	81.8%	90.9%	89.3%	78.3%	84.2%	78.1%	86.1%	78.6%	100.0%	66.7%	100.0%		100.0%	86.2%	100.0%	100.0%	85.7%	100.0%	66.7%	88.9%
17i8. Word Perfect - extent meets overall needs																						
- dissatisfied	6.9%	7.1%	7.9%	4.3%	5.6%	7.1%	5.0%	5.8%	6.7%	4.8%	0.0%	16.7%	20.0%		0.0%	4.2%	0.0%	0.0%	5.1%	0.0%	0.0%	4.9%
- satisfied	93.1%	92.9%	92.1%	95.7%	94.4%	92.9%	95.0%	94.2%	93.3%	95.2%	100.0%	83.3%	80.0%		100.0%	95.8%	100.0%	100.0%	94.9%	100.0%	100.0%	95.1%
17j1. Excel - availability for your use																						
- dissatisfied	3.7%	3.9%	4.4%	15.0%	0.0%	4.3%	0.0%	1.9%	2.7%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	0.0%	5.6%	0.0%	11.1%	2.2%
- satisfied	96.3%	96.1%	95.6%	85.0%	100.0%	95.7%	100.0%	98.1%	97.3%	95.1%	100.0%	100.0%	100.0%	100.0%	100.0%	95.2%	100.0%	100.0%	94.4%	100.0%	88.9%	97.8%
17j2. Excel - speed of response																						
- dissatisfied	14.3%	11.1%	13.3%	0.0%	3.4%	4.5%	4.3%	18.9%	20.5%	27.5%	12.5%	0.0%	16.7%	50.0%	12.5%	16.9%	100.0%	0.0%	17.0%	0.0%	10.0%	20.0%
- satisfied	85.7%	88.9%	86.7%	100.0%	96.6%	95.5%	95.7%	81.1%	79.5%	72.5%	87.5%	100.0%	83.3%	50.0%	87.5%	83.1%	0.0%	100.0%	83.0%	100.0%	90.0%	80.0%
17j3. Excel - ease of use																						
- dissatisfied	13.2%	12.2%	14.1%	0.0%	0.0%	13.6%	4.3%	20.8%	30.1%	53.7%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	0.0%	0.0%	3.8%	0.0%	5.3%	6.8%
- satisfied	86.8%	87.8%	85.9%	100.0%	100.0%	86.4%	95.7%	79.2%	69.9%	46.3%	100.0%	100.0%	100.0%	100.0%	100.0%	95.1%	100.0%	100.0%	96.2%	100.0%	94.7%	93.2%
17j4. Excel - reliability (freedom from downtime, problems)																						
- dissatisfied	6.4%	4.4%	4.7%	0.0%	3.4%	4.5%	0.0%	7.7%	9.9%	17.9%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%	100.0%	0.0%	9.4%	0.0%	0.0%	11.9%
- satisfied	93.6%	95.6%	95.3%	100.0%	96.6%	95.5%	100.0%	92.3%	90.1%	82.1%	100.0%	100.0%	100.0%	100.0%	100.0%	90.8%	0.0%	100.0%	90.6%	100.0%	100.0%	88.1%
17j5. Excel - availability of training																						
- dissatisfied	36.2%	42.4%	58.9%	15.8%	16.7%	23.8%	31.6%	41.0%	40.9%	65.7%	0.0%	11.1%	28.6%	0.0%	16.7%	18.9%	0.0%	0.0%	18.2%	0.0%	18.8%	22.6%
- satisfied	63.8%	57.6%	41.1%	84.2%	83.3%	76.2%	68.4%	59.0%	59.1%	34.3%	100.0%	88.9%	71.4%	100.0%	83.3%	81.1%	100.0%	100.0%	81.8%	100.0%	81.3%	77.4%
17j6. Excel - overall quality of training																						
- dissatisfied	28.7%	30.7%	43.3%	11.1%	5.6%	18.8%	21.4%	44.4%	38.9%	69.2%	0.0%	0.0%	28.6%	0.0%	16.7%	16.4%	0.0%	0.0%	15.2%	0.0%	10.0%	22.2%
- satisfied	71.3%	69.3%	56.7%	88.9%	94.4%	81.3%	78.6%	55.6%	61.1%	30.8%	100.0%	100.0%	71.4%	100.0%	83.3%	83.6%	100.0%	100.0%	84.8%	100.0%	90.0%	77.8%
17j7. Excel - ability to work with other applications																						
- dissatisfied	15.6%	15.5%	19.3%	15.8%	0.0%	30.0%	9.5%	9.3%	25.0%	39.4%	0.0%	14.3%	0.0%	0.0%	14.3%	6.8%		0.0%	8.5%	0.0%	0.0%	8.6%
- satisfied	84.4%	84.5%	80.7%	84.2%	100.0%	70.0%	90.5%	90.7%	75.0%	60.6%	100.0%	85.7%	100.0%	100.0%	85.7%	93.2%		100.0%	91.5%	100.0%	100.0%	91.4%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17j8. Excel - extent meets overall needs																						
- dissatisfied	11.1%	10.5%	14.7%	5.3%	0.0%	18.2%	0.0%	8.0%	22.9%	35.9%	0.0%	0.0%	16.7%	0.0%	12.5%	4.3%		0.0%	3.8%	0.0%	0.0%	7.3%
- satisfied	88.9%	89.5%	85.3%	94.7%	100.0%	81.8%	100.0%	92.0%	77.1%	64.1%	100.0%	100.0%	83.3%	100.0%	87.5%	95.7%		100.0%	96.2%	100.0%	100.0%	92.7%
17k1. Access - availability for your use																						
- dissatisfied	6.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	7.1%	9.1%	20.0%	0.0%	20.0%	0.0%	0.0%	0.0%	12.2%		0.0%	8.0%		25.0%	13.3%
- satisfied	93.2%	98.5%	100.0%	100.0%	100.0%	100.0%	100.0%	92.9%	90.9%	80.0%	100.0%	80.0%	100.0%	100.0%	100.0%	87.8%		100.0%	92.0%		75.0%	86.7%
17k2. Access - speed of response																						
- dissatisfied	18.4%	13.8%	16.7%	0.0%	0.0%	0.0%	0.0%	25.0%	14.3%	20.0%	33.3%	0.0%	0.0%	50.0%	0.0%	25.0%		0.0%	24.0%		12.5%	35.7%
- satisfied	81.6%	86.2%	83.3%	100.0%	100.0%	100.0%	100.0%	75.0%	85.7%	80.0%	66.7%	100.0%	100.0%	50.0%	100.0%	75.0%		100.0%	76.0%		87.5%	64.3%
17k3. Access - ease of use																						
- dissatisfied	15.6%	16.9%	20.0%	0.0%	14.3%	0.0%	0.0%	23.1%	13.6%	33.3%	0.0%	0.0%	0.0%	0.0%	25.0%	13.3%		0.0%	12.5%		0.0%	23.1%
- satisfied	84.4%	83.1%	80.0%	100.0%	85.7%	100.0%	100.0%	76.9%	86.4%	66.7%	100.0%	100.0%	100.0%	100.0%	75.0%	86.7%		100.0%	87.5%		100.0%	76.9%
17k4. Access - reliability (freedom from downtime, problems)																						
- dissatisfied	6.6%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	9.5%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.9%		0.0%	12.0%		0.0%	15.4%
- satisfied	93.4%	98.4%	100.0%	100.0%	100.0%	100.0%	100.0%	91.7%	90.5%	60.0%	100.0%	100.0%	100.0%	100.0%	100.0%	89.1%		100.0%	88.0%		100.0%	84.6%
17k5. Access - availability of training																						
- dissatisfied	36.6%	38.8%	48.0%	0.0%	14.3%	0.0%	75.0%	33.3%	43.5%	100.0%	0.0%	20.0%	33.3%	50.0%	33.3%	32.4%		0.0%	27.8%		40.0%	40.0%
- satisfied	63.4%	61.2%	52.0%	100.0%	85.7%	100.0%	25.0%	66.7%	56.5%	0.0%	100.0%	80.0%	66.7%	50.0%	66.7%	67.6%		100.0%	72.2%		60.0%	60.0%
17k6. Access - overall quality of training																						
- dissatisfied	25.6%	25.0%	28.6%	0.0%	0.0%	0.0%	33.3%	42.9%	31.6%	80.0%	0.0%	0.0%	50.0%	0.0%	33.3%	22.7%			16.7%		50.0%	25.0%
- satisfied	74.4%	75.0%	71.4%	100.0%	100.0%	100.0%	66.7%	57.1%	68.4%	20.0%	100.0%	100.0%	50.0%	100.0%	66.7%	77.3%			83.3%		50.0%	75.0%
17k7. Access - ability to work with other applications																						
- dissatisfied	13.6%	11.3%	17.9%	0.0%	0.0%	0.0%	0.0%	9.1%	23.5%	50.0%	0.0%	25.0%	0.0%	0.0%	25.0%	8.8%			10.5%		0.0%	11.1%
- satisfied	86.4%	88.7%	82.1%	100.0%	100.0%	100.0%	100.0%	90.9%	76.5%	50.0%	100.0%	75.0%	100.0%	100.0%	75.0%	91.2%			89.5%		100.0%	88.9%
17k8. Access - extent meets overall needs																						
- dissatisfied	10.5%	10.9%	17.2%	0.0%	0.0%	0.0%	0.0%	10.0%	10.5%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%		0.0%	4.3%		0.0%	8.3%
- satisfied	89.5%	89.1%	82.8%	100.0%	100.0%	100.0%	100.0%	90.0%	89.5%	50.0%	100.0%	100.0%	100.0%	100.0%	100.0%	95.2%		100.0%	95.7%		100.0%	91.7%
17l1. PowerPoint - availability for your use																						
- dissatisfied	5.2%	2.0%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	11.1%	0.0%	0.0%	0.0%		33.3%	7.4%		0.0%	5.7%		17.6%	3.7%
- satisfied	94.8%	98.0%	95.6%	100.0%	100.0%	100.0%	100.0%	100.0%	88.9%	88.9%	100.0%	100.0%	100.0%		66.7%	92.6%		100.0%	94.3%		82.4%	96.3%
17l2. PowerPoint - speed of response																						
- dissatisfied	17.3%	14.6%	19.0%	0.0%	0.0%	20.0%	12.5%	17.6%	23.5%	33.3%	0.0%	0.0%	0.0%		33.3%	20.8%		0.0%	24.2%		11.8%	23.1%
- satisfied	82.7%	85.4%	81.0%	100.0%	100.0%	80.0%	87.5%	82.4%	76.5%	66.7%	100.0%	100.0%	100.0%		66.7%	79.2%		100.0%	75.8%		88.2%	76.9%
17l3. PowerPoint - ease of use																						
- dissatisfied	16.0%	13.2%	12.2%	25.0%	0.0%	33.3%	12.5%	15.8%	44.4%	70.0%	0.0%	0.0%	0.0%		33.3%	13.2%		0.0%	12.1%		18.8%	11.5%
- satisfied	84.0%	86.8%	87.8%	75.0%	100.0%	66.7%	87.5%	84.2%	55.6%	30.0%	100.0%	100.0%	100.0%		66.7%	86.8%		100.0%	87.9%		81.3%	88.5%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17l4. PowerPoint - reliability (freedom from downtime, problems)																						
- dissatisfied	6.7%	5.5%	4.7%	25.0%	0.0%	0.0%	0.0%	11.1%	12.5%	22.2%	0.0%	0.0%	0.0%		0.0%	8.1%		0.0%	9.4%		0.0%	12.0%
- satisfied	93.3%	94.5%	95.3%	75.0%	100.0%	100.0%	100.0%	88.9%	87.5%	77.8%	100.0%	100.0%	100.0%		100.0%	91.9%		100.0%	90.6%		100.0%	88.0%
17l5. PowerPoint - availability of training																						
- dissatisfied	37.6%	41.7%	43.8%	25.0%	16.7%	40.0%	66.7%	53.8%	68.4%	100.0%	0.0%	33.3%	50.0%		50.0%	25.0%		0.0%	29.2%		33.3%	15.8%
- satisfied	62.4%	58.3%	56.3%	75.0%	83.3%	60.0%	33.3%	46.2%	31.6%	0.0%	100.0%	66.7%	50.0%		50.0%	75.0%		100.0%	70.8%		66.7%	84.2%
17l6. PowerPoint - overall quality of training																						
- dissatisfied	30.8%	33.3%	30.0%	25.0%	0.0%	66.7%	66.7%	50.0%	60.0%	87.5%	0.0%	0.0%	50.0%		50.0%	17.1%			13.3%		28.6%	15.4%
- satisfied	69.2%	66.7%	70.0%	75.0%	100.0%	33.3%	33.3%	50.0%	40.0%	12.5%	100.0%	100.0%	50.0%		50.0%	82.9%			86.7%		71.4%	84.6%
17l7. PowerPoint - ability to work with other applications																						
- dissatisfied	15.5%	13.5%	17.1%	25.0%	10.0%	0.0%	0.0%	13.3%	42.9%	62.5%	0.0%	0.0%	0.0%		33.3%	8.3%			7.7%		14.3%	5.0%
- satisfied	84.5%	86.5%	82.9%	75.0%	90.0%	100.0%	100.0%	86.7%	57.1%	37.5%	100.0%	100.0%	100.0%		66.7%	91.7%			92.3%		85.7%	95.0%
17l8. PowerPoint - extent meets overall needs																						
- dissatisfied	11.7%	13.8%	17.1%	25.0%	0.0%	20.0%	12.5%	12.5%	28.6%	37.5%	0.0%	0.0%	0.0%		33.3%	5.5%		0.0%	6.5%		12.5%	0.0%
- satisfied	88.3%	86.2%	82.9%	75.0%	100.0%	80.0%	87.5%	87.5%	71.4%	62.5%	100.0%	100.0%	100.0%		66.7%	94.5%		100.0%	93.5%		87.5%	100.0%
17m1. Action Writer - availability for your use																						
- dissatisfied	1.7%	1.5%	1.6%	25.0%	0.0%	0.0%	0.0%	0.0%	50.0%	100.0%					0.0%							
- satisfied	98.3%	98.5%	98.4%	75.0%	100.0%	100.0%	100.0%	100.0%	50.0%	0.0%					100.0%							
17m2. Action Writer - speed of response																						
- dissatisfied	18.2%	18.2%	19.5%	66.7%	16.7%	28.6%	0.0%	5.8%														
- satisfied	81.8%	81.8%	80.5%	33.3%	83.3%	71.4%	100.0%	94.2%														
17m3. Action Writer - ease of use																						
- dissatisfied	14.0%	13.7%	13.2%	25.0%	16.7%	42.9%	0.0%	13.5%	50.0%	100.0%					0.0%							
- satisfied	86.0%	86.3%	86.8%	75.0%	83.3%	57.1%	100.0%	86.5%	50.0%	0.0%					100.0%							
17m4. Action Writer - reliability (freedom from downtime, problems)																						
- dissatisfied	10.9%	10.7%	10.6%	33.3%	16.7%	28.6%	0.0%	7.7%														
- satisfied	89.1%	89.3%	89.4%	66.7%	83.3%	71.4%	100.0%	92.3%														
17m5. Action Writer - overall training																						
- dissatisfied	32.9%	32.3%	29.2%	100.0%	25.0%	80.0%	66.7%	46.5%	100.0%	100.0%					100.0%							
- satisfied	67.1%	67.7%	70.8%	0.0%	75.0%	20.0%	33.3%	53.5%														
17m6. Action Writer - overall quality of training																						
- dissatisfied	24.0%	23.8%	21.2%	100.0%	33.3%	75.0%	50.0%	33.3%	100.0%	100.0%					100.0%							
- satisfied	76.0%	76.2%	78.8%	0.0%	66.7%	25.0%	50.0%	66.7%														

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17m7. Action Writer - ability to work with other applications																						
- dissatisfied	23.7%	23.4%	23.9%	33.3%	0.0%	57.1%	0.0%	17.8%														
- satisfied	76.3%	76.6%	76.1%	66.7%	100.0%	42.9%	100.0%	82.2%														
17m8. Action Writer - extent meets overall needs																						
- dissatisfied	11.4%	11.5%	10.9%	33.3%	16.7%	50.0%	0.0%	8.3%														
- satisfied	88.6%	88.5%	89.1%	66.7%	83.3%	50.0%	100.0%	91.7%														
17n1. PCT - availability for your use																						
- dissatisfied	10.5%	10.0%	9.5%	0.0%	0.0%	28.6%	0.0%	13.3%								100.0%	100.0%		100.0%			
- satisfied	89.5%	90.0%	90.5%	100.0%	100.0%	71.4%	100.0%	86.7%														
17n2. PCT - speed of response																						
- dissatisfied	59.2%	59.4%	60.1%	100.0%	57.1%	71.4%	0.0%	55.8%								100.0%	100.0%		100.0%			
- satisfied	40.8%	40.6%	39.9%	0.0%	42.9%	28.6%	100.0%	44.2%														
17n3. PCT - ease of use																						
- dissatisfied	57.1%	56.6%	55.9%	100.0%	42.9%	71.4%	0.0%	65.1%								100.0%	100.0%		100.0%			
- satisfied	42.9%	43.4%	44.1%	0.0%	57.1%	28.6%	100.0%	34.9%														
17n4. PCT - reliability (freedom from downtime, problems)																						
- dissatisfied	38.7%	38.2%	38.6%	100.0%	14.3%	57.1%	0.0%	37.2%								100.0%	100.0%		100.0%			
- satisfied	61.3%	61.8%	61.4%	0.0%	85.7%	42.9%	100.0%	62.8%														
17n5. PCT - availability of training																						
- dissatisfied	52.3%	50.9%	51.9%	100.0%	16.7%	16.7%	33.3%	55.6%								100.0%	100.0%		100.0%			
- satisfied	47.7%	49.1%	48.1%	0.0%	83.3%	83.3%	66.7%	44.4%														
17n6. PCT - overall quality of training																						
- dissatisfied	45.6%	43.9%	42.4%	100.0%	40.0%	0.0%	33.3%	64.0%								100.0%	100.0%		100.0%			
- satisfied	54.4%	56.1%	57.6%	0.0%	60.0%	100.0%	66.7%	36.0%														
17n7. PCT - ability to work with other applications																						
- dissatisfied	68.8%	68.4%	68.2%	100.0%	33.3%	71.4%	33.3%	79.3%								100.0%	100.0%		100.0%			
- satisfied	31.2%	31.6%	31.8%	0.0%	66.7%	28.6%	66.7%	20.7%														
17n8. PCT - extent meets overall needs																						
- dissatisfied	44.4%	43.9%	44.1%	100.0%	12.5%	71.4%	0.0%	46.2%								100.0%	100.0%		100.0%			
- satisfied	55.6%	56.1%	55.9%	0.0%	87.5%	28.6%	100.0%	53.8%														
17o1. ID Manual - availability for your use																						
- dissatisfied	2.3%	2.4%	0.0%	0.0%	0.0%	0.0%		33.3%	1.3%	1.5%		0.0%	0.0%	0.0%	0.0%	50.0%	0.0%		100.0%			
- satisfied	97.7%	97.6%	100.0%	100.0%	100.0%	100.0%		66.7%	98.7%	98.5%		100.0%	100.0%	100.0%	100.0%	50.0%	100.0%		0.0%			
17o2. ID Manual - speed of response																						
- dissatisfied	19.3%	29.4%	23.3%		0.0%	100.0%		100.0%	13.3%	15.4%		0.0%	0.0%	0.0%	0.0%	100.0%	100.0%		100.0%			
- satisfied	80.7%	70.6%	76.7%		100.0%	0.0%		0.0%	86.7%	84.6%		100.0%	100.0%	100.0%	100.0%							

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17o3. ID Manual - ease of use																						
- dissatisfied	25.4%	37.1%	30.0%	100.0%	0.0%	100.0%		100.0%	20.0%	21.5%		33.3%	0.0%	0.0%	0.0%	50.0%	0.0%		100.0%			
- satisfied	74.6%	62.9%	70.0%	0.0%	100.0%	0.0%		0.0%	80.0%	78.5%		66.7%	100.0%	100.0%	100.0%	50.0%	100.0%		0.0%			
17o4. ID Manual - reliability (freedom from downtime, problems)																						
- dissatisfied	12.4%	14.7%	10.0%		0.0%	50.0%		100.0%	10.5%	12.1%		0.0%	0.0%	0.0%	0.0%	50.0%	0.0%		100.0%			
- satisfied	87.6%	85.3%	90.0%		100.0%	50.0%		0.0%	89.5%	87.9%		100.0%	100.0%	100.0%	100.0%	50.0%	100.0%		0.0%			
17o5. ID Manual - availability of training																						
- dissatisfied	46.7%	66.7%	65.2%		0.0%	100.0%		100.0%	38.2%	40.7%		33.3%	33.3%	0.0%	0.0%	50.0%	0.0%		100.0%			
- satisfied	53.3%	33.3%	34.8%		100.0%	0.0%		0.0%	61.8%	59.3%		66.7%	66.7%	100.0%	100.0%	50.0%	100.0%		0.0%			
17o6. ID Manual - overall quality of training																						
- dissatisfied	37.3%	41.2%	43.8%					0.0%	36.2%	38.5%		50.0%	0.0%		0.0%	50.0%	0.0%		100.0%			
- satisfied	62.7%	58.8%	56.3%					100.0%	63.8%	61.5%		50.0%	100.0%		100.0%	50.0%	100.0%		0.0%			
17o7. ID Manual - ability to work with other applications																						
- dissatisfied	36.0%	52.4%	44.4%	100.0%		100.0%			29.5%	31.5%		50.0%	0.0%		0.0%							
- satisfied	64.0%	47.6%	55.6%	0.0%		0.0%			70.5%	68.5%		50.0%	100.0%		100.0%							
17o8. ID Manual - extent meets overall needs																						
- dissatisfied	18.1%	33.3%	31.0%	100.0%	0.0%	50.0%			9.6%	9.4%		0.0%	0.0%	0.0%	33.3%							
- satisfied	81.9%	66.7%	69.0%	0.0%	100.0%	50.0%			90.4%	90.6%		100.0%	100.0%	100.0%	66.7%							
17p1. TMEP - availability for your use																						
- dissatisfied	1.3%								1.7%	2.0%		0.0%	0.0%		0.0%							
- satisfied	98.7%	100.0%	100.0%	100.0%				100.0%	98.3%	98.0%		100.0%	100.0%		100.0%	100.0%	100.0%				100.0%	
17p2. TMEP - speed of response																						
- dissatisfied	15.7%								15.3%	18.4%		0.0%	0.0%		0.0%	33.3%	100.0%				0.0%	
- satisfied	84.3%	100.0%	100.0%					100.0%	84.7%	81.6%		100.0%	100.0%		100.0%	66.7%	0.0%				100.0%	
17p3. TMEP - ease of use																						
- dissatisfied	21.6%	20.0%	0.0%	100.0%				0.0%	21.7%	26.0%		0.0%	0.0%		0.0%							
- satisfied	78.4%	80.0%	100.0%	0.0%				100.0%	78.3%	74.0%		100.0%	100.0%		100.0%	100.0%	100.0%				100.0%	
17p4. TMEP - reliability (freedom from downtime, problems)																						
- dissatisfied	10.8%	20.0%	25.0%					0.0%	11.5%	13.7%		0.0%	0.0%		0.0%							
- satisfied	89.2%	80.0%	75.0%					100.0%	88.5%	86.3%		100.0%	100.0%		100.0%	100.0%	100.0%				100.0%	
17p5. TMEP - availability of training																						
- dissatisfied	66.1%								68.1%	70.7%		50.0%	100.0%		33.3%							
- satisfied	33.9%								31.9%	29.3%		50.0%	0.0%		66.7%	100.0%	100.0%				100.0%	
17p6. TMEP - overall quality of training																						
- dissatisfied	60.0%								64.1%	69.4%		0.0%			0.0%							
- satisfied	40.0%								35.9%	30.6%		100.0%			100.0%	100.0%	100.0%				100.0%	

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17p7. TMEP - ability to work with other applications																						
- dissatisfied	31.6%	50.0%	0.0%	100.0%					30.6%	34.1%		100.0%	0.0%		0.0%							
- satisfied	68.4%	50.0%	100.0%	0.0%					69.4%	65.9%		0.0%	100.0%		100.0%	100.0%					100.0%	
17p8. TMEP - extent meets overall needs																						
- dissatisfied	17.9%	25.0%	0.0%	100.0%				0.0%	16.1%	19.1%		0.0%	0.0%		0.0%							
- satisfied	82.1%	75.0%	100.0%	0.0%				100.0%	83.9%	80.9%		100.0%	100.0%		100.0%	100.0%					100.0%	
17q1. Desktop Proc - availability for your use																						
- dissatisfied	17.2%	20.0%	0.0%		0.0%			40.0%								18.2%		33.3%	19.2%		25.0%	9.1%
- satisfied	82.8%	80.0%	100.0%		100.0%			60.0%	100.0%			100.0%			100.0%	81.8%		66.7%	80.8%		75.0%	90.9%
17q2. Desktop Proc - speed of response																						
- dissatisfied	52.3%	36.4%	0.0%	0.0%	33.3%			60.0%	50.0%			0.0%			100.0%	54.5%		50.0%	65.4%		20.0%	45.5%
- satisfied	47.7%	63.6%	100.0%	100.0%	66.7%			40.0%	50.0%			100.0%			0.0%	45.5%		50.0%	34.6%		80.0%	54.5%
17q3. Desktop Proc - ease of use																						
- dissatisfied	35.4%	20.0%	0.0%		0.0%			40.0%								36.4%		0.0%	42.3%		60.0%	18.2%
- satisfied	64.6%	80.0%	100.0%		100.0%			60.0%	100.0%			100.0%			100.0%	63.6%		100.0%	57.7%		40.0%	81.8%
17q4. Desktop Proc - reliability (freedom from downtime, problems)																						
- dissatisfied	35.5%	20.0%	0.0%		0.0%			40.0%	50.0%			0.0%			100.0%	38.1%		0.0%	52.0%		40.0%	10.0%
- satisfied	64.5%	80.0%	100.0%		100.0%			60.0%	50.0%			100.0%			0.0%	61.9%		100.0%	48.0%		60.0%	90.0%
17q5. Desktop Proc - availability of training																						
- dissatisfied	18.3%	40.0%	100.0%		0.0%			40.0%								12.5%		0.0%	12.5%		25.0%	10.0%
- satisfied	81.7%	60.0%	0.0%		100.0%			60.0%	100.0%			100.0%			100.0%	87.5%		100.0%	87.5%		75.0%	90.0%
17q6. Desktop Proc - overall quality of training																						
- dissatisfied	12.1%	22.2%	50.0%		0.0%			25.0%								7.7%		0.0%	8.3%		25.0%	0.0%
- satisfied	87.9%	77.8%	50.0%		100.0%			75.0%	100.0%			100.0%			100.0%	92.3%		100.0%	91.7%		75.0%	100.0%
17q7. Desktop Proc - ability to work with other applications																						
- dissatisfied	41.8%	22.2%	50.0%		0.0%			25.0%	50.0%			100.0%			0.0%	44.7%		0.0%	54.2%		66.7%	20.0%
- satisfied	58.2%	77.8%	50.0%		100.0%			75.0%	50.0%			0.0%			100.0%	55.3%		100.0%	45.8%		33.3%	80.0%
17q8. Desktop Proc - extent meets overall needs																						
- dissatisfied	29.5%	10.0%	0.0%		0.0%			20.0%	25.0%			0.0%			50.0%	32.5%		0.0%	45.8%		25.0%	10.0%
- satisfied	70.5%	90.0%	100.0%		100.0%			80.0%	75.0%			100.0%			50.0%	67.5%		100.0%	54.2%		75.0%	90.0%
17r1. FFS - availability for your use																						
	5.2%	12.5%			0.0%		100.0%	0.0%								2.5%		0.0%	0.0%		25.0%	0.0%
- satisfied	94.8%	87.5%			100.0%		0.0%	100.0%	100.0%			100.0%			100.0%	97.5%		100.0%	100.0%		75.0%	100.0%
17r2. FFS - speed of response																						
- dissatisfied	24.1%	25.0%			0.0%		100.0%	25.0%								22.5%		0.0%	22.7%		20.0%	27.3%
- satisfied	75.9%	75.0%			100.0%		0.0%	75.0%	100.0%			100.0%			100.0%	77.5%		100.0%	77.3%		80.0%	72.7%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17r3. FFS - ease of use																						
- dissatisfied	44.1%	25.0%			0.0%		100.0%	25.0%	100.0%			100.0%			100.0%	35.0%		0.0%	22.7%		80.0%	45.5%
- satisfied	55.9%	75.0%			100.0%		0.0%	75.0%								65.0%		100.0%	77.3%		20.0%	54.5%
17r4. FFS - reliability (freedom from downtime, problems)																						
- dissatisfied	17.9%	12.5%			0.0%		100.0%	0.0%	33.3%			0.0%			50.0%	15.8%		0.0%	19.0%		40.0%	0.0%
- satisfied	82.1%	87.5%			100.0%		0.0%	100.0%	66.7%			100.0%			50.0%	84.2%		100.0%	81.0%		60.0%	100.0%
17r5. FFS - availability of training																						
- dissatisfied	15.7%	12.5%			0.0%		0.0%	25.0%								12.1%		0.0%	10.5%		50.0%	0.0%
- satisfied	84.3%	87.5%			100.0%		100.0%	75.0%	100.0%			100.0%			100.0%	87.9%		100.0%	89.5%		50.0%	100.0%
17r6. FFS - overall quality of training																						
- dissatisfied	14.3%								33.3%			100.0%			0.0%	9.7%		0.0%	10.5%		25.0%	0.0%
- satisfied	85.7%	100.0%			100.0%		100.0%	100.0%	66.7%			0.0%			100.0%	90.3%		100.0%	89.5%		75.0%	100.0%
17r7. FFS - ability to work with other applications																						
- dissatisfied	50.0%	33.3%			0.0%		100.0%	33.3%	100.0%			100.0%			100.0%	45.5%		0.0%	44.4%		75.0%	40.0%
- satisfied	50.0%	66.7%			100.0%		0.0%	66.7%								54.5%		100.0%	55.6%		25.0%	60.0%
17r8. FFS - extent meets overall needs																						
- dissatisfied	23.6%	12.5%			0.0%		100.0%	0.0%	33.3%			0.0%			50.0%	22.2%		0.0%	20.0%		75.0%	10.0%
- satisfied	76.4%	87.5%			100.0%		0.0%	100.0%	66.7%			100.0%			50.0%	77.8%		100.0%	80.0%		25.0%	90.0%
17s1. CRDA - availability for your use																						
- dissatisfied	19.0%	37.5%		42.9%				0.0%	16.7%	50.0%	0.0%			0.0%	0.0%							
- satisfied	81.0%	62.5%		57.1%				100.0%	83.3%	50.0%	100.0%			100.0%	100.0%	100.0%		100.0%	100.0%		100.0%	100.0%
17s2. CRDA - speed of response																						
- dissatisfied	15.0%	25.0%		28.6%				0.0%								20.0%		0.0%	0.0%		0.0%	100.0%
- satisfied	85.0%	75.0%		71.4%				100.0%	100.0%	100.0%	100.0%			100.0%	100.0%	80.0%		100.0%	100.0%		100.0%	0.0%
17s3. CRDA - ease of use																						
- dissatisfied	40.0%	12.5%		14.3%				0.0%	33.3%	50.0%	100.0%			0.0%	0.0%	80.0%		100.0%	50.0%		100.0%	100.0%
- satisfied	60.0%	87.5%		85.7%				100.0%	66.7%	50.0%	0.0%			100.0%	100.0%	20.0%		0.0%	50.0%		0.0%	0.0%
17s4. CRDA - reliability (freedom from downtime, problems)																						
- dissatisfied	30.0%	37.5%		42.9%				0.0%	16.7%	0.0%	100.0%			0.0%	0.0%	40.0%		100.0%	50.0%		0.0%	0.0%
- satisfied	70.0%	62.5%		57.1%				100.0%	83.3%	100.0%	0.0%			100.0%	100.0%	60.0%		0.0%	50.0%		100.0%	100.0%
17s5. CRDA - availability of training																						
- dissatisfied	52.6%	42.9%		50.0%				0.0%	60.0%	50.0%	100.0%				50.0%	60.0%		100.0%	50.0%		0.0%	100.0%
- satisfied	47.4%	57.1%		50.0%				100.0%	40.0%	50.0%	0.0%				50.0%	40.0%		0.0%	50.0%		100.0%	0.0%
17s6. CRDA - overall quality of training																						
- dissatisfied	35.7%	16.7%		16.7%					50.0%	0.0%	100.0%				50.0%	33.3%		100.0%	0.0%		0.0%	
- satisfied	64.3%	83.3%		83.3%					50.0%	100.0%	0.0%				50.0%	66.7%		0.0%	100.0%		100.0%	

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents***	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
17s7. CRDA - ability to work with other applications																						
- dissatisfied	58.8%	37.5%		42.9%				0.0%	66.7%	100.0%					50.0%	100.0%		100.0%	100.0%		100.0%	
- satisfied	41.2%	62.5%		57.1%				100.0%	33.3%	0.0%					50.0%							
17s8. CRDA - extent meets overall needs																						
- dissatisfied	40.0%	25.0%		28.6%				0.0%	33.3%	50.0%	0.0%			0.0%	50.0%	75.0%		0.0%	100.0%		100.0%	
- satisfied	60.0%	75.0%		71.4%				100.0%	66.7%	50.0%	100.0%			100.0%	50.0%	25.0%		100.0%	0.0%		0.0%	
18A APS Text - Accessibility of terminals																						
- dissatisfied	8.7%	8.6%	8.5%	50.0%	11.1%	5.9%	14.3%	7.6%	25.0%		0.0%			0.0%	50.0%	8.3%	0.0%	0.0%	0.0%	0.0%	25.0%	11.1%
- satisfied	91.3%	91.4%	91.5%	50.0%	88.9%	94.1%	85.7%	92.4%	75.0%		100.0%			100.0%	50.0%	91.7%	100.0%	100.0%	100.0%	100.0%	75.0%	88.9%
18A APS Text - Presence of editing tools																						
- dissatisfied	40.4%	40.0%	38.3%	50.0%	33.3%	50.0%	20.0%	47.9%	50.0%		0.0%			0.0%	100.0%	47.1%	0.0%	50.0%	50.0%	0.0%	50.0%	60.0%
- satisfied	59.6%	60.0%	61.7%	50.0%	66.7%	50.0%	80.0%	52.1%	50.0%		100.0%			100.0%	0.0%	52.9%	100.0%	50.0%	50.0%	100.0%	50.0%	40.0%
18A APS Text - Degree of customization																						
- dissatisfied	37.2%	37.8%	37.6%	50.0%	28.6%	29.4%	0.0%	44.2%	50.0%		0.0%			0.0%	100.0%	21.1%	0.0%	50.0%	0.0%	0.0%	25.0%	40.0%
- satisfied	62.8%	62.2%	62.4%	50.0%	71.4%	70.6%	100.0%	55.8%	50.0%		100.0%			100.0%	0.0%	78.9%	100.0%	50.0%	100.0%	100.0%	75.0%	60.0%
18A APS Text - Historicity																						
- dissatisfied	50.8%	52.5%	49.5%	0.0%	25.0%	68.8%	40.0%	69.2%								28.6%	0.0%	0.0%	14.3%	0.0%	0.0%	71.4%
- satisfied	49.2%	47.5%	50.5%	100.0%	75.0%	31.3%	60.0%	30.8%	100.0%		100.0%			100.0%	100.0%	71.4%	100.0%	100.0%	85.7%	100.0%	100.0%	28.6%
18A APS Text- Currency																						
- dissatisfied	6.9%	7.4%	5.9%	50.0%	0.0%	5.9%	0.0%	15.2%														
- satisfied	93.1%	92.6%	94.1%	50.0%	100.0%	94.1%	100.0%	84.8%	100.0%		100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
18A APS Text - Inclusiveness																						
- dissatisfied	22.8%	23.7%	23.8%	50.0%	0.0%	23.5%	16.7%	25.3%								5.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%
- satisfied	77.2%	76.3%	76.2%	50.0%	100.0%	76.5%	83.3%	74.7%	100.0%		100.0%			100.0%	100.0%	95.0%	100.0%	50.0%	100.0%	100.0%	100.0%	100.0%
18A APS Text - Freedom from data entry errors																						
- dissatisfied	18.2%	18.6%	19.5%	50.0%	0.0%	6.7%	0.0%	19.2%								9.5%	0.0%	50.0%	0.0%	0.0%	0.0%	14.3%
- satisfied	81.8%	81.4%	80.5%	50.0%	100.0%	93.3%	100.0%	80.8%	100.0%		100.0%			100.0%	100.0%	90.5%	100.0%	50.0%	100.0%	100.0%	100.0%	85.7%
18A APS Text- Coding/classification accuracy																						
- dissatisfied	10.1%	10.2%	9.9%	100.0%	0.0%	6.3%	0.0%	13.0%								4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%
- satisfied	89.9%	89.8%	90.1%	0.0%	100.0%	93.8%	100.0%	87.0%	100.0%		100.0%			100.0%	100.0%	95.2%	100.0%	100.0%	100.0%	100.0%	100.0%	85.7%
18A APS Text - Freedom from missing records																						
- dissatisfied	13.9%	13.7%	12.8%	100.0%	0.0%	12.5%	0.0%	19.2%	25.0%		0.0%			100.0%	0.0%	14.3%	0.0%	0.0%	14.3%	0.0%	0.0%	33.3%
- satisfied	86.1%	86.3%	87.2%	0.0%	100.0%	87.5%	100.0%	80.8%	75.0%		100.0%			0.0%	100.0%	85.7%	100.0%	100.0%	85.7%	100.0%	100.0%	66.7%
18B APS Image - Accessibility of terminals																						
- dissatisfied	35.9%	36.4%	37.3%		20.0%	28.6%	50.0%	35.0%								35.0%	0.0%		42.9%	0.0%	33.3%	50.0%
- satisfied	64.1%	63.6%	62.7%		80.0%	71.4%	50.0%	65.0%	100.0%		100.0%			100.0%		65.0%	100.0%		57.1%	100.0%	66.7%	50.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18B APS Image - Presence of editing tools																						
- dissatisfied	47.9%	49.1%	45.8%		33.3%	42.9%	33.3%	64.7%	50.0%		100.0%			0.0%		35.7%	0.0%		66.7%	0.0%	0.0%	75.0%
- satisfied	52.1%	50.9%	54.2%		66.7%	57.1%	66.7%	35.3%	50.0%		0.0%			100.0%		64.3%	100.0%		33.3%	100.0%	100.0%	25.0%
18B APS Image - Degree of customization																						
- dissatisfied	37.0%	39.2%	36.5%		25.0%	42.9%	0.0%	52.6%								17.6%	0.0%		16.7%	0.0%	0.0%	50.0%
- satisfied	63.0%	60.8%	63.5%		75.0%	57.1%	100.0%	47.4%	100.0%		100.0%			100.0%		82.4%	100.0%		83.3%	100.0%	100.0%	50.0%
18B APS Image - Historicity																						
- dissatisfied	21.4%	22.3%	19.9%		0.0%	57.1%	0.0%	28.2%								21.1%	0.0%		42.9%	0.0%	0.0%	20.0%
- satisfied	78.6%	77.7%	80.1%		100.0%	42.9%	100.0%	71.8%	100.0%		100.0%			100.0%		78.9%	100.0%		57.1%	100.0%	100.0%	80.0%
18B APS Image - Currency																						
- dissatisfied	8.1%	8.4%	7.2%		0.0%	14.3%	0.0%	13.2%														
- satisfied	91.9%	91.6%	92.8%		100.0%	85.7%	100.0%	86.8%	100.0%		100.0%			100.0%		100.0%	100.0%		100.0%	100.0%	100.0%	100.0%
18B APS Image - Inclusiveness																						
- dissatisfied	17.1%	18.2%	19.4%		0.0%	14.3%	0.0%	17.9%								5.9%	0.0%		0.0%	0.0%	0.0%	20.0%
- satisfied	82.9%	81.8%	80.6%		100.0%	85.7%	100.0%	82.1%	100.0%		100.0%			100.0%		94.1%	100.0%		100.0%	100.0%	100.0%	80.0%
18B APS Image - Freedom from data entry errors																						
- dissatisfied	18.2%	17.9%	19.1%		0.0%	14.3%	0.0%	17.9%	50.0%		100.0%			0.0%		16.7%	0.0%		0.0%	0.0%	0.0%	60.0%
- satisfied	81.8%	82.1%	80.9%		100.0%	85.7%	100.0%	82.1%	50.0%		0.0%			100.0%		83.3%	100.0%		100.0%	100.0%	100.0%	40.0%
18B APS Image - Coding/classification accuracy																						
- dissatisfied	18.1%	19.0%	18.2%		25.0%	14.3%	0.0%	23.1%								11.1%	0.0%		0.0%	0.0%	0.0%	40.0%
- satisfied	81.9%	81.0%	81.8%		75.0%	85.7%	100.0%	76.9%	100.0%		100.0%			100.0%		88.9%	100.0%		100.0%	100.0%	100.0%	60.0%
18B APS Image - Freedom from missing records																						
- dissatisfied	23.4%	23.5%	22.6%		25.0%	14.3%	0.0%	30.8%								22.2%	0.0%		28.6%	0.0%	0.0%	50.0%
- satisfied	76.6%	76.5%	77.4%		75.0%	85.7%	100.0%	69.2%	100.0%		100.0%			100.0%		77.8%	100.0%		71.4%	100.0%	100.0%	50.0%
18C PALM - Accessibility of terminals																						
- dissatisfied	25.6%	26.6%	29.2%	30.2%	21.4%	3.7%	9.5%	26.0%								24.4%	0.0%	33.3%	30.8%	0.0%	14.3%	26.3%
- satisfied	74.4%	73.4%	70.8%	69.8%	78.6%	96.3%	90.5%	74.0%	100.0%		100.0%	100.0%			100.0%	75.6%	100.0%	66.7%	69.2%	100.0%	85.7%	73.7%
18C PALM - Presence of editing tools																						
- dissatisfied	48.9%	49.3%	52.9%	30.6%	33.3%	58.3%	28.6%	50.0%	50.0%		0.0%				100.0%	45.9%	0.0%	75.0%	42.9%	0.0%	33.3%	56.3%
- satisfied	51.1%	50.7%	47.1%	69.4%	66.7%	41.7%	71.4%	50.0%	50.0%		100.0%				0.0%	54.1%	100.0%	25.0%	57.1%	100.0%	66.7%	43.8%
18C PALM - Degree of customization																						
- dissatisfied	37.0%	36.9%	38.1%	20.0%	25.0%	40.7%	25.0%	46.4%	50.0%		0.0%	100.0%			100.0%	37.2%	0.0%	33.3%	16.7%	50.0%	42.9%	52.9%
- satisfied	63.0%	63.1%	61.9%	80.0%	75.0%	59.3%	75.0%	53.6%	50.0%		100.0%	0.0%			0.0%	62.8%	100.0%	66.7%	83.3%	50.0%	57.1%	47.1%
18C PALM - Historicity																						
- dissatisfied	18.7%	17.4%	14.8%	24.3%	32.0%	34.6%	20.0%	14.1%	25.0%		50.0%	0.0%			0.0%	31.1%	50.0%	25.0%	33.3%	0.0%	14.3%	38.9%
- satisfied	81.3%	82.6%	85.2%	75.7%	68.0%	65.4%	80.0%	85.9%	75.0%		50.0%	100.0%			100.0%	68.9%	50.0%	75.0%	66.7%	100.0%	85.7%	61.1%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18C PALM - Currency																						
- dissatisfied	13.0%	12.6%	8.6%	28.2%	33.3%	15.4%	23.8%	12.5%								22.2%	100.0%	33.3%	23.1%	0.0%	14.3%	16.7%
- satisfied	87.0%	87.4%	91.4%	71.8%	66.7%	84.6%	76.2%	87.5%	100.0%		100.0%	100.0%			100.0%	77.8%	0.0%	66.7%	76.9%	100.0%	85.7%	83.3%
18C PALM - Inclusiveness																						
- dissatisfied	18.6%	18.8%	16.0%	24.2%	29.6%	36.0%	36.8%	14.7%								20.5%	0.0%	33.3%	16.7%	0.0%	28.6%	22.2%
- satisfied	81.4%	81.2%	84.0%	75.8%	70.4%	64.0%	63.2%	85.3%	100.0%		100.0%	100.0%			100.0%	79.5%	100.0%	66.7%	83.3%	100.0%	71.4%	77.8%
18C PALM - Freedom from data entry errors																						
- dissatisfied	22.5%	22.7%	21.7%	28.6%	36.0%	29.2%	30.0%	15.7%								26.2%	100.0%	33.3%	9.1%	0.0%	16.7%	33.3%
- satisfied	77.5%	77.3%	78.3%	71.4%	64.0%	70.8%	70.0%	84.3%	100.0%		100.0%	100.0%			100.0%	73.8%	0.0%	66.7%	90.9%	100.0%	83.3%	66.7%
18C PALM - Coding/classification accuracy																						
- dissatisfied	17.4%	17.3%	15.7%	27.3%	34.8%	20.8%	11.8%	14.5%								23.8%	50.0%	66.7%	18.2%	0.0%	16.7%	22.2%
- satisfied	82.6%	82.7%	84.3%	72.7%	65.2%	79.2%	88.2%	85.5%	100.0%			100.0%			100.0%	76.2%	50.0%	33.3%	81.8%	100.0%	83.3%	77.8%
18C PALM - Freedom from missing records																						
- dissatisfied	15.2%	15.0%	12.3%	24.2%	41.7%	29.2%	17.6%	8.7%								22.0%	50.0%	66.7%	20.0%	0.0%	16.7%	16.7%
- satisfied	84.8%	85.0%	87.7%	75.8%	58.3%	70.8%	82.4%	91.3%	100.0%			100.0%			100.0%	78.0%	50.0%	33.3%	80.0%	100.0%	83.3%	83.3%
18D X-Search - Accessibility of terminals																						
- dissatisfied	33.6%	14.3%	0.0%		100.0%	0.0%	0.0%	0.0%	32.3%	37.7%	0.0%	0.0%	33.3%	33.3%	16.7%	37.5%	100.0%		25.0%		0.0%	100.0%
- satisfied	66.4%	85.7%	100.0%		0.0%	100.0%	100.0%	100.0%	67.7%	62.3%	100.0%	100.0%	66.7%	66.7%	83.3%	62.5%	0.0%		75.0%		100.0%	0.0%
18D X-Search - Presence of editing tools																						
- dissatisfied	42.4%	33.3%	0.0%		100.0%			0.0%	42.3%	51.8%	25.0%	0.0%	0.0%	50.0%	33.3%	33.3%			33.3%		50.0%	0.0%
- satisfied	57.6%	66.7%	100.0%		0.0%			100.0%	57.7%	48.2%	75.0%	100.0%	100.0%	50.0%	66.7%	66.7%			66.7%		50.0%	100.0%
18D X-Search - Degree of customization																						
- dissatisfied	21.9%	40.0%	0.0%		100.0%		100.0%		19.8%	25.4%	0.0%	0.0%	0.0%	0.0%	16.7%	12.5%	0.0%		25.0%		0.0%	0.0%
- satisfied	78.1%	60.0%	100.0%		0.0%		0.0%		80.2%	74.6%	100.0%	100.0%	100.0%	100.0%	83.3%	87.5%	100.0%		75.0%		100.0%	100.0%
18D X-Search - Historicity																						
- dissatisfied	6.3%								5.6%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%		25.0%		0.0%	0.0%
- satisfied	93.8%	100.0%	100.0%		100.0%				94.4%	92.6%	100.0%	100.0%	100.0%	100.0%	100.0%	87.5%	100.0%		75.0%		100.0%	100.0%
18D X-Search - Currency																						
- dissatisfied	25.4%								24.2%	29.0%	0.0%	25.0%	0.0%	33.3%	0.0%	25.0%	100.0%		25.0%		0.0%	0.0%
- satisfied	74.6%	100.0%	100.0%		100.0%				75.8%	71.0%	100.0%	75.0%	100.0%	66.7%	100.0%	75.0%	0.0%		75.0%		100.0%	100.0%
18D X-Search - Inclusiveness																						
- dissatisfied	18.2%	33.3%	0.0%		100.0%				17.0%	20.9%	0.0%	0.0%	0.0%	33.3%	0.0%	12.5%	0.0%		25.0%		0.0%	0.0%
- satisfied	81.8%	66.7%	100.0%		0.0%				83.0%	79.1%	100.0%	100.0%	100.0%	66.7%	100.0%	87.5%	100.0%		75.0%		100.0%	100.0%
18D X-Search - Freedom from data entry errors																						
- dissatisfied	48.6%								49.4%	56.5%	0.0%	33.3%	20.0%	33.3%	33.3%	37.5%	100.0%		50.0%		0.0%	0.0%
- satisfied	51.4%	100.0%	100.0%		100.0%				50.6%	43.5%	100.0%	66.7%	80.0%	66.7%	66.7%	62.5%	0.0%		50.0%		100.0%	100.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18D X-Search - Coding/classification accuracy																						
- dissatisfied	53.6%								54.5%	63.8%	0.0%	0.0%	20.0%	33.3%	33.3%	50.0%	100.0%		50.0%		50.0%	0.0%
- satisfied	46.4%	100.0%	100.0%		100.0%				45.5%	36.2%	100.0%	100.0%	80.0%	66.7%	66.7%	50.0%	0.0%		50.0%		50.0%	100.0%
18D X-Search - Freedom from missing records																						
- dissatisfied	54.1%								55.6%	63.8%	0.0%	0.0%	20.0%	33.3%	66.7%	37.5%	100.0%		25.0%		50.0%	0.0%
- satisfied	45.9%	100.0%	100.0%		100.0%				44.4%	36.2%	100.0%	100.0%	80.0%	66.7%	33.3%	62.5%	0.0%		75.0%		50.0%	100.0%
18E TRAM - Accessibility of terminals																						
- dissatisfied	37.4%								37.0%	49.3%	7.1%	20.0%	33.3%	0.0%	16.7%	41.7%	100.0%	100.0%	20.0%		0.0%	66.7%
- satisfied	62.6%								63.0%	50.7%	92.9%	80.0%	66.7%	100.0%	83.3%	58.3%	0.0%	0.0%	80.0%		100.0%	33.3%
18E TRAM - Presence of editing tools																						
- dissatisfied	48.1%								48.8%	64.8%	15.4%	28.6%	20.0%	0.0%	33.3%	33.3%		100.0%	25.0%		0.0%	50.0%
- satisfied	51.9%								51.2%	35.2%	84.6%	71.4%	80.0%	100.0%	66.7%	66.7%		0.0%	75.0%		100.0%	50.0%
18E TRAM - Degree of customization																						
- dissatisfied	28.4%								25.0%	32.8%	0.0%	0.0%	40.0%	33.3%	16.7%	41.7%	100.0%	100.0%	20.0%		50.0%	33.3%
- satisfied	71.6%								75.0%	67.2%	100.0%	100.0%	60.0%	66.7%	83.3%	58.3%	0.0%	0.0%	80.0%		50.0%	66.7%
18E TRAM - Historicity																						
- dissatisfied	11.5%								8.0%	11.8%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	100.0%	0.0%	40.0%		50.0%	0.0%
- satisfied	88.5%								92.0%	88.2%	100.0%	100.0%	100.0%	100.0%	100.0%	66.7%	0.0%	100.0%	60.0%		50.0%	100.0%
18E TRAM - Currency																						
- dissatisfied	22.6%								24.5%	33.8%	0.0%	12.5%	0.0%	33.3%	0.0%	16.7%	100.0%	0.0%	20.0%		0.0%	0.0%
- satisfied	77.4%								75.5%	66.2%	100.0%	87.5%	100.0%	66.7%	100.0%	83.3%	0.0%	100.0%	80.0%		100.0%	100.0%
18E TRAM - Inclusiveness																						
- dissatisfied	16.3%								16.2%	22.7%	0.0%	0.0%	0.0%	33.3%	0.0%	25.0%	100.0%	0.0%	20.0%		50.0%	0.0%
- satisfied	83.7%								83.8%	77.3%	100.0%	100.0%	100.0%	66.7%	100.0%	75.0%	0.0%	100.0%	80.0%		50.0%	100.0%
18E TRAM - Freedom from data entry errors																						
- dissatisfied	37.2%								36.3%	47.1%	16.7%	12.5%	20.0%	0.0%	16.7%	41.7%	100.0%	0.0%	40.0%		50.0%	33.3%
- satisfied	62.8%								63.7%	52.9%	83.3%	87.5%	80.0%	100.0%	83.3%	58.3%	0.0%	100.0%	60.0%		50.0%	66.7%
18E TRAM - Coding/classification accuracy																						
- dissatisfied	30.2%								26.8%	34.8%	9.1%	0.0%	20.0%	0.0%	20.0%	50.0%	100.0%	100.0%	40.0%		50.0%	33.3%
- satisfied	69.8%								73.2%	65.2%	90.9%	100.0%	80.0%	100.0%	80.0%	50.0%	0.0%	0.0%	60.0%		50.0%	66.7%
18E TRAM - Freedom from missing records																						
- dissatisfied	27.4%								26.5%	31.3%	18.2%	0.0%	20.0%	33.3%	20.0%	36.4%	100.0%	100.0%	25.0%		50.0%	0.0%
- satisfied	72.6%								73.5%	68.7%	81.8%	100.0%	80.0%	66.7%	80.0%	63.6%	0.0%	0.0%	75.0%		50.0%	100.0%
18F Co-pending - Accessibility of terminals																						
- dissatisfied	9.4%								7.0%	8.0%	0.0%	0.0%	0.0%		0.0%	33.3%	100.0%		0.0%			
- satisfied	90.6%								93.0%	92.0%	100.0%	100.0%	100.0%		100.0%	66.7%	0.0%		100.0%			

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18F Co-pending - Presence of editing tools																						
- dissatisfied	29.8%								28.6%	32.4%	50.0%	0.0%	0.0%		0.0%							
- satisfied	70.2%								71.4%	67.6%	50.0%	100.0%	100.0%		100.0%							
18F Co-pending - Degree of customization																						
- dissatisfied	12.5%								10.5%	12.0%	0.0%	0.0%	0.0%		0.0%	33.3%	100.0%		0.0%			
- satisfied	87.5%								89.5%	88.0%	100.0%	100.0%	100.0%		100.0%	66.7%	0.0%		100.0%			
16F Co-pending - Historicity																						
- dissatisfied	40.3%								38.2%	38.8%	0.0%	0.0%	100.0%		33.3%	33.3%	100.0%		0.0%			
- satisfied	59.7%								61.8%	61.2%	100.0%	100.0%	0.0%		66.7%	66.7%	0.0%		100.0%			
18F Co-pending - Currency																						
- dissatisfied	49.2%								48.2%	51.0%	0.0%	0.0%	100.0%		33.3%	33.3%	100.0%		0.0%			
- satisfied	50.8%								51.8%	49.0%	100.0%	100.0%	0.0%		66.7%	66.7%	0.0%		100.0%			
18F Co-pending - Inclusiveness																						
- dissatisfied	29.5%								25.9%	20.8%	0.0%	0.0%	100.0%		100.0%	33.3%	100.0%		0.0%			
- satisfied	70.5%								74.1%	79.2%	100.0%	100.0%	0.0%		0.0%	66.7%	0.0%		100.0%			
18F Co-pending - Freedom from data entry errors																						
- dissatisfied	35.0%								32.1%	29.2%	0.0%	100.0%	0.0%		100.0%	33.3%	100.0%		0.0%			
- satisfied	65.0%								67.9%	70.8%	100.0%	0.0%	100.0%		0.0%	66.7%	0.0%		100.0%			
18F Co-pending - Coding/classification accuracy																						
- dissatisfied	30.0%								26.4%	25.0%	0.0%	0.0%	0.0%		100.0%	66.7%	100.0%		50.0%			
- satisfied	70.0%								73.6%	75.0%	100.0%	100.0%	100.0%		0.0%	33.3%	0.0%		50.0%			
18F Co-pending - Freedom from missing records																						
- dissatisfied	32.8%								31.5%	32.7%	0.0%	0.0%	0.0%		50.0%	33.3%	100.0%		0.0%			
- satisfied	67.2%								68.5%	67.3%	100.0%	100.0%	100.0%		50.0%	66.7%	0.0%		100.0%			
18Q Desktop Proc. - Accessibility of terminals																						
- dissatisfied	14.3%								20.0%		100.0%	0.0%			0.0%	13.6%		50.0%	7.7%		25.0%	16.7%
- satisfied	85.7%	100.0%	100.0%		100.0%			100.0%	80.0%		0.0%	100.0%			100.0%	86.4%		50.0%	92.3%		75.0%	83.3%
18Q Desktop Proc. - Presence of editing tools																						
- dissatisfied	25.9%	28.6%	0.0%		0.0%			50.0%								26.2%		0.0%	25.0%		50.0%	25.0%
- satisfied	74.1%	71.4%	100.0%		100.0%			50.0%	100.0%			100.0%			100.0%	73.8%		100.0%	75.0%		50.0%	75.0%
18Q Desktop Proc. - Degree of customization																						
- dissatisfied	20.6%	10.0%	0.0%	0.0%	0.0%			20.0%	25.0%			0.0%			50.0%	20.5%		0.0%	23.1%		25.0%	16.7%
- satisfied	79.4%	90.0%	100.0%	100.0%	100.0%			80.0%	75.0%			100.0%			50.0%	79.5%		100.0%	76.9%		75.0%	83.3%
18Q Desktop Proc. - Historicity																						
- dissatisfied	23.6%	22.2%	0.0%		33.3%			20.0%	33.3%			0.0%			50.0%	21.1%		0.0%	22.7%		66.7%	9.1%
- satisfied	76.4%	77.8%	100.0%		66.7%			80.0%	66.7%			100.0%			50.0%	78.9%		100.0%	77.3%		33.3%	90.9%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18Q Desktop Proc. - Currency																						
- dissatisfied	14.0%															15.0%		0.0%	12.5%		33.3%	18.2%
- satisfied	86.0%	100.0%	100.0%		100.0%			100.0%	100.0%			100.0%			100.0%	85.0%		100.0%	87.5%		66.7%	81.8%
18Q Desktop Proc. - Inclusiveness																						
- dissatisfied	23.2%	11.1%	0.0%		33.3%			0.0%	33.3%			0.0%			50.0%	23.1%		0.0%	25.0%		50.0%	18.2%
- satisfied	76.8%	88.9%	100.0%		66.7%			100.0%	66.7%			100.0%			50.0%	76.9%		100.0%	75.0%		50.0%	81.8%
18Q Desktop Proc. - Freedom from data entry errors																						
- dissatisfied	24.1%	12.5%	0.0%		0.0%			25.0%								23.7%		0.0%	25.0%		50.0%	20.0%
- satisfied	75.9%	87.5%	100.0%		100.0%			75.0%	100.0%			100.0%			100.0%	76.3%		100.0%	75.0%		50.0%	80.0%
18Q Desktop Proc. - Coding/classification accuracy																						
- dissatisfied	20.0%	14.3%	0.0%		0.0%			33.3%								20.0%		0.0%	19.0%		50.0%	20.0%
- satisfied	80.0%	85.7%	100.0%		100.0%			66.7%	100.0%			100.0%			100.0%	80.0%		100.0%	81.0%		50.0%	80.0%
18Q Desktop Proc. - Freedom from missing records																						
- dissatisfied	14.8%	12.5%	0.0%		33.3%			0.0%	33.3%			0.0%			50.0%	10.5%		0.0%	9.1%		50.0%	8.3%
- satisfied	85.2%	87.5%	100.0%		66.7%			100.0%	66.7%			100.0%			50.0%	89.5%		100.0%	90.9%		50.0%	91.7%
18R FFS - Accessibility of terminals																						
- dissatisfied	8.9%															7.7%		0.0%	9.1%		25.0%	0.0%
- satisfied	91.1%	100.0%			100.0%		100.0%	100.0%	100.0%			100.0%			100.0%	92.3%		100.0%	90.9%		75.0%	100.0%
18R FFS - Presence of editing tools																						
- dissatisfied	30.8%	42.9%			0.0%		100.0%	50.0%								30.6%		0.0%	19.0%		50.0%	50.0%
- satisfied	69.2%	57.1%			100.0%		0.0%	50.0%	100.0%			100.0%			100.0%	69.4%		100.0%	81.0%		50.0%	50.0%
18R FFS - Degree of customization																						
- dissatisfied	25.0%	12.5%			0.0%		100.0%	0.0%	33.3%			0.0%			50.0%	23.1%		0.0%	22.7%		50.0%	18.2%
- satisfied	75.0%	87.5%			100.0%		0.0%	100.0%	66.7%			100.0%			50.0%	76.9%		100.0%	77.3%		50.0%	81.8%
18R FFS - Historicity																						
- dissatisfied	19.2%	25.0%			33.3%		100.0%	0.0%	50.0%						50.0%	13.9%		0.0%	10.5%		50.0%	9.1%
- satisfied	80.8%	75.0%			66.7%		0.0%	100.0%	50.0%						50.0%	86.1%		100.0%	89.5%		50.0%	90.9%
18R FFS - Currency																						
- dissatisfied	13.2%	12.5%			0.0%		100.0%	0.0%								10.8%		0.0%	10.0%		25.0%	9.1%
- satisfied	86.8%	87.5%			100.0%		0.0%	100.0%	100.0%						100.0%	89.2%		100.0%	90.0%		75.0%	90.9%
18R FFS - Inclusiveness																						
- dissatisfied	19.2%	25.0%			33.3%		100.0%	0.0%	50.0%						50.0%	13.9%		0.0%	10.0%		33.3%	18.2%
- satisfied	80.8%	75.0%			66.7%		0.0%	100.0%	50.0%						50.0%	86.1%		100.0%	90.0%		66.7%	81.8%
18R FFS - Freedom from data entry errors																						
- dissatisfied	23.1%	12.5%			0.0%		100.0%	0.0%								22.2%		0.0%	19.0%		33.3%	30.0%
- satisfied	76.9%	87.5%			100.0%		0.0%	100.0%	100.0%						100.0%	77.8%		100.0%	81.0%		66.7%	70.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
18R FFS - Coding/classification accuracy																						
- dissatisfied	16.7%	14.3%			0.0%		100.0%	0.0%								15.2%		0.0%	11.1%		33.3%	20.0%
- satisfied	83.3%	85.7%			100.0%		0.0%	100.0%	100.0%						100.0%	84.8%		100.0%	88.9%		66.7%	80.0%
18R FFS - Freedom from missing records																						
- dissatisfied	16.7%	28.6%			33.3%		100.0%	0.0%	50.0%						50.0%	9.1%		0.0%	5.6%		33.3%	10.0%
- satisfied	83.3%	71.4%			66.7%		0.0%	100.0%	50.0%						50.0%	90.9%		100.0%	94.4%		66.7%	90.0%
18S CRDA - Accessibility of terminals																						
- dissatisfied	50.0%	66.7%		71.4%	100.0%			0.0%	28.6%	50.0%	50.0%			0.0%	0.0%	42.9%		0.0%	50.0%	0.0%	0.0%	100.0%
- satisfied	50.0%	33.3%		28.6%	0.0%			100.0%	71.4%	50.0%	50.0%			100.0%	100.0%	57.1%		100.0%	50.0%	100.0%	100.0%	0.0%
18S CRDA - Presence of editing tools																						
- dissatisfied	60.0%	42.9%		50.0%				0.0%	66.7%	100.0%					0.0%	75.0%		100.0%	100.0%	0.0%	100.0%	
- satisfied	40.0%	57.1%		50.0%				100.0%	33.3%	0.0%					100.0%	25.0%		0.0%	0.0%	100.0%	0.0%	
18S CRDA - Degree of customization																						
- dissatisfied	52.4%	62.5%		66.7%	100.0%			0.0%	50.0%	100.0%	0.0%			0.0%	50.0%	33.3%		0.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	47.6%	37.5%		33.3%	0.0%			100.0%	50.0%	0.0%	100.0%			100.0%	50.0%	66.7%		100.0%	50.0%	100.0%	0.0%	100.0%
18S CRDA - Historicity																						
- dissatisfied	19.0%	11.1%		14.3%	0.0%			0.0%								33.3%		100.0%	50.0%	0.0%	0.0%	0.0%
- satisfied	81.0%	88.9%		85.7%	100.0%			100.0%	100.0%	100.0%				100.0%	100.0%	66.7%		0.0%	50.0%	100.0%	100.0%	100.0%
18S CRDA - Currency																						
- dissatisfied	19.0%															50.0%		100.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	81.0%	100.0%		100.0%	100.0%			100.0%	100.0%	100.0%				100.0%	100.0%	50.0%		0.0%	50.0%	100.0%	0.0%	100.0%
18S CRDA - Inclusiveness																						
- dissatisfied	26.3%								20.0%	50.0%				0.0%	0.0%	50.0%		100.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	73.7%	100.0%		100.0%				100.0%	80.0%	50.0%				100.0%	100.0%	50.0%		0.0%	50.0%	100.0%	0.0%	100.0%
18S CRDA - Freedom from data entry errors																						
- dissatisfied	30.0%	12.5%		14.3%				0.0%	20.0%	50.0%				0.0%	0.0%	50.0%		100.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	70.0%	87.5%		85.7%				100.0%	80.0%	50.0%				100.0%	100.0%	50.0%		0.0%	50.0%	100.0%	0.0%	100.0%
18S CRDA - Coding/classification accuracy																						
- dissatisfied	33.3%	16.7%		20.0%				0.0%	20.0%	50.0%				0.0%	0.0%	50.0%		100.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	66.7%	83.3%		80.0%				100.0%	80.0%	50.0%				100.0%	100.0%	50.0%		0.0%	50.0%	100.0%	0.0%	100.0%
18S CRDA - Freedom from missing records																						
- dissatisfied	31.6%	14.3%		16.7%				0.0%	20.0%	50.0%				0.0%	0.0%	50.0%		100.0%	50.0%	0.0%	100.0%	0.0%
- satisfied	68.4%	85.7%		83.3%				100.0%	80.0%	50.0%				100.0%	100.0%	50.0%		0.0%	50.0%	100.0%	0.0%	100.0%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
19. How satisfied are you with the following resources in helping you with your computer related support needs?																						
19A. The Help Desk (305-9000)																						
- dissatisfied	27.2%	22.8%	24.3%	8.1%	19.0%	14.3%	31.0%	23.9%	33.6%	50.0%	5.3%	0.0%	42.9%	20.0%	22.2%	35.7%	33.3%	0.0%	33.8%	50.0%	44.4%	37.1%
- satisfied	72.8%	77.2%	75.7%	91.9%	81.0%	85.7%	69.0%	76.1%	66.4%	50.0%	94.7%	100.0%	57.1%	80.0%	77.8%	64.3%	66.7%	100.0%	66.2%	50.0%	55.6%	62.9%
19B. Personnel in the CIO																						
- dissatisfied	32.6%	32.8%	35.2%	14.3%	19.2%	47.1%	37.5%	39.0%	43.4%	63.6%	18.2%	14.3%	25.0%	50.0%	60.0%	25.7%		14.3%	26.2%	0.0%	28.0%	26.8%
- satisfied	67.4%	67.2%	64.8%	85.7%	80.8%	52.9%	62.5%	61.0%	56.6%	36.4%	81.8%	85.7%	75.0%	50.0%	40.0%	74.3%		85.7%	73.8%	100.0%	72.0%	73.2%
19C. Personnel in SIR																						
- dissatisfied	25.3%	22.3%	28.3%	5.0%	10.5%	33.3%	9.1%	18.0%	44.4%	70.0%	25.0%	0.0%	50.0%	100.0%	33.3%	33.3%	0.0%	20.0%	28.6%	50.0%	58.3%	26.7%
- satisfied	74.7%	77.7%	71.7%	95.0%	89.5%	66.7%	90.9%	82.0%	55.6%	30.0%	75.0%	100.0%	50.0%	0.0%	66.7%	66.7%	100.0%	80.0%	71.4%	50.0%	41.7%	73.3%
19D. Knowledgeable colleague(s)																						
- dissatisfied	11.0%	10.4%	11.2%	15.9%	6.7%	3.4%	0.0%	10.9%	15.7%	14.8%	17.6%	10.0%	28.6%	0.0%	22.2%	11.1%	0.0%	12.5%	16.4%	0.0%	7.7%	7.7%
- satisfied	89.0%	89.6%	88.8%	84.1%	93.3%	96.6%	100.0%	89.1%	84.3%	85.2%	82.4%	90.0%	71.4%	100.0%	77.8%	88.9%	100.0%	87.5%	83.6%	100.0%	92.3%	92.3%
19E. Outside Help Hotlines (non-PTO)																						
- dissatisfied	23.0%	24.0%	22.7%	23.5%	15.4%	0.0%	50.0%	30.0%	48.1%	45.5%	37.5%	100.0%	100.0%	0.0%	0.0%	11.1%	0.0%	0.0%	7.4%	0.0%	16.7%	18.8%
- satisfied	77.0%	76.0%	77.3%	76.5%	84.6%	100.0%	50.0%	70.0%	51.9%	54.5%	62.5%	0.0%	0.0%	100.0%	100.0%	88.9%	100.0%	100.0%	92.6%	100.0%	83.3%	81.3%
19F On-line Help in software																						
- dissatisfied	40.4%	41.2%	48.8%	18.2%	17.6%	27.3%	36.4%	35.4%	53.4%	56.9%	40.0%	37.5%	42.9%	50.0%	75.0%	29.8%	33.3%	0.0%	25.0%	0.0%	48.0%	30.4%
- satisfied	59.6%	58.8%	51.2%	81.8%	82.4%	72.7%	63.6%	64.6%	46.6%	43.1%	60.0%	62.5%	57.1%	50.0%	25.0%	70.2%	66.7%	100.0%	75.0%	100.0%	52.0%	69.6%
20. Have you had occasion to call the PTO Help Desk within the past three months?																						
- No	28.5%	30.6%	28.2%	49.1%	41.1%	23.3%	23.3%	29.0%	30.9%	30.4%	38.1%	27.3%	14.3%	40.0%	30.0%	18.8%	25.0%	33.3%	13.9%	0.0%	17.9%	22.9%
- Yes, I have called myself	61.8%	62.6%	66.8%	34.5%	50.0%	70.0%	63.3%	64.5%	56.1%	58.0%	52.4%	54.5%	57.1%	40.0%	60.0%	65.6%	75.0%	66.7%	66.7%	66.7%	67.9%	62.9%
- Yes, I have reported a problem to a designated unit coordinator who has called	9.6%	6.9%	5.0%	16.4%	8.9%	6.7%	13.3%	6.5%	13.0%	11.6%	9.5%	18.2%	28.6%	20.0%	10.0%	15.6%	0.0%	0.0%	19.4%	33.3%	14.3%	14.3%
21. How many separate Help Desk "incidents" have you called in over the last three months?																						
- One incident	34.9%	38.5%	41.6%	25.0%	36.4%	30.4%	34.8%	35.5%	30.6%	33.3%	30.8%	25.0%	33.3%	33.3%	14.3%	27.2%	33.3%	50.0%	32.3%	0.0%	17.4%	24.1%
- 2 to 4 incidents	51.0%	49.8%	48.5%	53.6%	48.5%	56.5%	52.2%	51.3%	55.3%	56.3%	61.5%	50.0%	50.0%	66.7%	42.9%	49.7%	33.3%	50.0%	45.2%	33.3%	56.5%	53.7%
- 5 or more incidents	14.1%	11.7%	9.9%	21.4%	15.2%	13.0%	13.0%	13.2%	14.1%	10.4%	7.7%	25.0%	16.7%	0.0%	42.9%	23.2%	33.3%	0.0%	22.6%	66.7%	26.1%	22.2%
22. What was the general nature of the problem call in for your most recent incident?																						
- Equipment problem	32.0%	34.7%	31.4%	60.7%	43.8%	52.2%	30.4%	30.1%	36.6%	31.9%	41.7%	50.0%	50.0%	0.0%	50.0%	20.9%	66.7%	16.7%	25.0%	0.0%	17.4%	17.0%
- Software problem	15.6%	16.4%	18.9%	0.0%	6.3%	13.0%	26.1%	15.1%	18.3%	21.3%	16.7%	12.5%	0.0%	33.3%	16.7%	11.5%	0.0%	16.7%	8.3%	0.0%	17.4%	13.2%
- Network problem	23.9%	23.4%	25.0%	14.3%	21.9%	34.8%	26.1%	16.4%	17.1%	17.0%	25.0%	25.0%	16.7%	0.0%	0.0%	28.4%	0.0%	50.0%	28.3%	0.0%	26.1%	30.2%
- Combination of the above	23.4%	20.2%	19.3%	21.4%	18.8%	0.0%	8.7%	34.2%	25.6%	27.7%	8.3%	12.5%	33.3%	66.7%	33.3%	34.5%	33.3%	16.7%	33.3%	100.0%	39.1%	32.1%
- None of the above	5.0%	5.3%	5.4%	3.6%	9.4%	0.0%	8.7%	4.1%	2.4%	2.1%	8.3%	0.0%	0.0%	0.0%	0.0%	4.7%	0.0%	0.0%	5.0%	0.0%	0.0%	7.5%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
23. How many times did you call the Help Desk for your most recent problem?																						
- One time	54.8%	61.6%	62.5%	48.3%	62.5%	69.6%	60.9%	60.5%	43.5%	43.8%	38.5%	75.0%	33.3%	33.3%	28.6%	44.2%	0.0%	66.7%	47.5%	0.0%	52.2%	39.6%
- 2 to 4 times	40.7%	35.5%	35.5%	44.8%	25.0%	30.4%	34.8%	38.2%	52.9%	54.2%	61.5%	25.0%	50.0%	66.7%	57.1%	48.3%	66.7%	33.3%	44.1%	66.7%	47.8%	52.8%
- 5 or more times	4.5%	2.9%	2.0%	6.9%	12.5%	0.0%	4.3%	1.3%	3.5%	2.1%	0.0%	0.0%	16.7%	0.0%	14.3%	7.5%	33.3%	0.0%	8.5%	33.3%	0.0%	7.5%
24. How satisfied were you with the following aspects of the assistance you received from the Help Desk for your most recent call?																						
24A. Courtesy of the Help Desk staff																						
- dissatisfied	9.6%	8.0%	10.4%	3.6%	0.0%	4.3%	0.0%	6.7%	18.8%	29.2%	7.7%	0.0%	16.7%	0.0%	0.0%	8.8%	0.0%	0.0%	4.9%	33.3%	18.2%	9.6%
- satisfied	90.4%	92.0%	89.6%	96.4%	100.0%	95.7%	100.0%	93.3%	81.2%	70.8%	92.3%	100.0%	83.3%	100.0%	100.0%	91.2%	100.0%	100.0%	95.1%	66.7%	81.8%	90.4%
24B. Technical knowledge of the person you spoke with																						
- dissatisfied	28.2%	24.9%	27.4%	10.3%	10.3%	19.0%	36.4%	25.0%	36.6%	54.3%	0.0%	0.0%	33.3%	66.7%	14.3%	30.7%	0.0%	0.0%	31.0%	66.7%	50.0%	25.5%
- satisfied	71.8%	75.1%	72.6%	89.7%	89.7%	81.0%	63.6%	75.0%	63.4%	45.7%	100.0%	100.0%	66.7%	33.3%	85.7%	69.3%	100.0%	100.0%	69.0%	33.3%	50.0%	74.5%
24C. Speed of initial response to your problem																						
- dissatisfied	32.1%	29.1%	31.5%	20.7%	15.2%	26.1%	34.8%	28.0%	36.5%	50.0%	15.4%	12.5%	33.3%	33.3%	14.3%	38.0%	0.0%	0.0%	35.5%	66.7%	60.9%	35.8%
- satisfied	67.9%	70.9%	68.5%	79.3%	84.8%	73.9%	65.2%	72.0%	63.5%	50.0%	84.6%	87.5%	66.7%	66.7%	85.7%	62.0%	100.0%	100.0%	64.5%	33.3%	39.1%	64.2%
24D. Speed of completely resolving your problem																						
- dissatisfied	35.3%	30.6%	32.9%	20.0%	12.5%	34.8%	43.5%	28.4%	43.5%	54.2%	23.1%	12.5%	33.3%	66.7%	42.9%	44.2%	33.3%	16.7%	42.6%	66.7%	59.1%	42.3%
- satisfied	64.7%	69.4%	67.1%	80.0%	87.5%	65.2%	56.5%	71.6%	56.5%	45.8%	76.9%	87.5%	66.7%	33.3%	57.1%	55.8%	66.7%	83.3%	57.4%	33.3%	40.9%	57.7%
24E. Effectiveness of the response																						
- dissatisfied	27.0%	24.1%	25.6%	6.7%	15.2%	27.3%	21.7%	28.8%	33.7%	41.7%	18.2%	0.0%	16.7%	66.7%	42.9%	31.8%	0.0%	0.0%	33.9%	66.7%	40.9%	28.8%
- satisfied	73.0%	75.9%	74.4%	93.3%	84.8%	72.7%	78.3%	71.2%	66.3%	58.3%	81.8%	100.0%	83.3%	33.3%	57.1%	68.2%	100.0%	100.0%	66.1%	33.3%	59.1%	71.2%
24F. Ability to resolve the problem the first time																						
- dissatisfied	37.9%	32.8%	33.9%	24.1%	21.9%	30.4%	47.8%	32.9%	47.6%	62.5%	16.7%	12.5%	50.0%	66.7%	28.6%	46.2%	33.3%	0.0%	45.9%	66.7%	66.7%	42.3%
- satisfied	62.1%	67.2%	66.1%	75.9%	78.1%	69.6%	52.2%	67.1%	52.4%	37.5%	83.3%	87.5%	50.0%	33.3%	71.4%	53.8%	66.7%	100.0%	54.1%	33.3%	33.3%	57.7%
25. Considering all of the experiences that you have had with the Help Desk over the last three months, how satisfied are you that it meets all of your computer-related support needs?																						
- dissatisfied	29.1%	25.2%	27.5%	10.7%	12.1%	18.2%	43.5%	23.3%	40.0%	54.2%	7.7%	0.0%	33.3%	66.7%	42.9%	34.2%	0.0%	0.0%	35.5%	33.3%	50.0%	32.1%
- satisfied	70.9%	74.8%	72.5%	89.3%	87.9%	81.8%	56.5%	76.7%	60.0%	45.8%	92.3%	100.0%	66.7%	33.3%	57.1%	65.8%	100.0%	100.0%	64.5%	66.7%	50.0%	67.9%
26. How satisfied are you with the information you receive concerning major decisions and changes that affect the information systems and software tools that you use?																						
- dissatisfied	54.4%	53.6%	56.3%	40.5%	34.0%	51.7%	41.4%	62.5%	69.0%	78.8%	40.0%	58.3%	71.4%	60.0%	62.5%	47.8%	0.0%	25.0%	54.7%	33.3%	50.0%	46.4%
- satisfied	45.6%	46.4%	43.7%	59.5%	66.0%	48.3%	58.6%	37.5%	31.0%	21.2%	60.0%	41.7%	28.6%	40.0%	37.5%	52.2%	100.0%	75.0%	45.3%	66.7%	50.0%	53.6%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**:	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
27. How do you hear about major decisions and changes that affect the information systems that you use?																						
27A. Newletter																						
- yes	32.9%	36.6%	38.3%	37.3%	20.8%	38.5%	30.0%	35.7%	20.5%	23.3%	30.8%	10.0%	40.0%	0.0%	11.1%	23.2%	50.0%	40.0%	16.4%	0.0%	30.4%	26.7%
- no	67.1%	63.4%	61.7%	62.7%	79.2%	61.5%	70.0%	64.3%	79.5%	76.7%	69.2%	90.0%	60.0%	100.0%	88.9%	76.8%	50.0%	60.0%	83.6%	100.0%	69.6%	73.3%
27B. Immediate supervisor																						
- yes	28.5%	29.2%	27.4%	43.1%	27.7%	30.8%	19.0%	30.8%	33.0%	33.3%	40.0%	27.3%	25.0%	40.0%	25.0%	21.9%	0.0%	40.0%	16.4%	33.3%	39.1%	21.7%
- no	71.5%	70.8%	72.6%	56.9%	72.3%	69.2%	81.0%	69.2%	67.0%	66.7%	60.0%	72.7%	75.0%	60.0%	75.0%	78.1%	100.0%	60.0%	83.6%	66.7%	60.9%	78.3%
27C. Colleagues/word of mouth																						
- yes	66.1%	65.2%	66.2%	55.1%	44.4%	52.0%	78.3%	78.0%	59.1%	73.3%	23.1%	33.3%	60.0%	60.0%	60.0%	72.9%	75.0%	20.0%	81.8%	66.7%	73.9%	72.6%
- no	33.9%	34.8%	33.8%	44.9%	55.6%	48.0%	21.7%	22.0%	40.9%	26.7%	76.9%	66.7%	40.0%	40.0%	40.0%	27.1%	25.0%	80.0%	18.2%	33.3%	26.1%	27.4%
27D. Network administrator																						
- yes	29.3%	25.5%	23.4%	19.6%	42.2%	44.4%	33.3%	22.4%	42.0%	44.2%	46.7%	40.0%	37.5%	28.6%	28.6%	34.2%	25.0%	80.0%	30.9%	33.3%	34.8%	36.7%
- no	70.7%	74.5%	76.6%	80.4%	57.8%	55.6%	66.7%	77.6%	58.0%	55.8%	53.3%	60.0%	62.5%	71.4%	71.4%	65.8%	75.0%	20.0%	69.1%	66.7%	65.2%	63.3%
27E. Help Desk																						
- yes	1.5%	1.4%	0.5%	5.9%	8.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	0.0%	0.0%	1.9%	33.3%	8.7%	1.7%
- no	98.5%	98.6%	99.5%	94.1%	91.1%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	96.8%	100.0%	100.0%	98.1%	66.7%	91.3%	98.3%
27F. Office of Program Control																						
- yes	2.9%	1.1%	0.8%	0.0%	4.4%	3.8%	5.3%	0.0%	18.2%	22.2%	6.7%	27.3%	33.3%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	33.3%	0.0%	1.7%
- no	97.1%	98.9%	99.2%	100.0%	95.6%	96.2%	94.7%	100.0%	81.8%	77.8%	93.3%	72.7%	66.7%	100.0%	100.0%	98.7%	100.0%	100.0%	100.0%	66.7%	100.0%	98.3%
27G. Training Courses																						
- yes	7.1%	8.0%	8.0%	15.7%	8.9%	7.7%	0.0%	4.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	11.1%	7.1%	0.0%	20.0%	7.4%	33.3%	17.4%	1.7%
- no	92.9%	92.0%	92.0%	84.3%	91.1%	92.3%	100.0%	95.1%	98.9%	100.0%	100.0%	100.0%	100.0%	100.0%	88.9%	92.9%	100.0%	80.0%	92.6%	66.7%	82.6%	98.3%
28. How satisfied are you with the voice that you have in the decisions and changes that affect the information systems and software tools that you use?																						
- dissatisfied	69.6%	73.4%	75.5%	60.5%	61.8%	76.0%	61.5%	77.8%	68.5%	75.8%	30.8%	72.7%	57.1%	50.0%	85.7%	60.9%	50.0%	42.9%	64.4%	100.0%	53.8%	61.5%
- satisfied	30.4%	26.6%	24.5%	39.5%	38.2%	24.0%	38.5%	22.2%	31.5%	24.2%	69.2%	27.3%	42.9%	50.0%	14.3%	39.1%	50.0%	57.1%	35.6%	0.0%	46.2%	38.5%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
*number of respondents**	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
29. Would you say that office automation has had a positive or negative impact on your ability to do your job?																						
- positive	92.9%	93.5%	93.6%	90.2%	96.2%	90.3%	96.8%	93.3%	90.2%	87.0%	94.7%	91.7%	85.7%	100.0%	100.0%	93.4%	100.0%	100.0%	88.4%	100.0%	96.4%	95.7%
- negative	7.1%	6.5%	6.4%	9.8%	3.8%	9.7%	3.2%	6.7%	9.8%	13.0%	5.3%	8.3%	14.3%	0.0%	0.0%	6.6%	0.0%	0.0%	11.6%	0.0%	3.6%	4.3%
30. Which of the following changes or enhancements would have the greatest positive impact on your day-to-day productivity?																						
30A. Placing PALM/TRAM at your desktop																						
- no/minor impact	43.9%	44.2%	46.5%	38.3%	37.5%	10.3%	29.2%	54.7%	33.7%	20.4%	50.0%	60.0%	25.0%	75.0%	50.0%	42.4%	33.3%	25.0%	33.3%	50.0%	50.0%	48.0%
- moderate/major impact	56.1%	55.8%	53.5%	61.7%	62.5%	89.7%	70.8%	45.3%	66.3%	79.6%	50.0%	40.0%	75.0%	25.0%	50.0%	57.6%	66.7%	75.0%	66.7%	50.0%	50.0%	52.0%
30.B Placing X-Search at your desktop																						
- no/minor impact	39.0%	44.9%	41.2%	52.9%	43.8%	55.6%	83.3%	40.9%	21.9%	14.5%	50.0%	16.7%	14.3%	100.0%	22.2%	48.8%	0.0%	0.0%	38.5%		33.3%	70.0%
- moderate/major impact	61.0%	55.1%	58.8%	47.1%	56.3%	44.4%	16.7%	59.1%	78.1%	85.5%	50.0%	83.3%	85.7%	0.0%	77.8%	51.2%	100.0%	100.0%	61.5%		66.7%	30.0%
30C. Placing APS Image at your desktop																						
- no/minor impact	32.1%	27.6%	22.2%	39.1%	36.0%	52.2%	71.4%	32.9%	60.0%	75.0%	62.5%		0.0%		50.0%	63.3%	33.3%	33.3%	66.7%	100.0%	57.1%	70.0%
- moderate/major impact	67.9%	72.4%	77.8%	60.9%	64.0%	47.8%	28.6%	67.1%	40.0%	25.0%	37.5%		100.0%		50.0%	36.7%	66.7%	66.7%	33.3%	0.0%	42.9%	30.0%
30D. Upgrading applications on PTOnet																						
- no/minor impact	44.9%	45.1%	43.1%	30.6%	41.3%	67.9%	59.1%	50.6%	48.0%	47.5%	45.5%	45.5%	28.6%	100.0%	62.5%	38.4%	25.0%	50.0%	32.1%	100.0%	50.0%	38.5%
- moderate/major impact	55.1%	54.9%	56.9%	69.4%	58.7%	32.1%	40.9%	49.4%	52.0%	52.5%	54.5%	54.5%	71.4%	0.0%	37.5%	61.6%	75.0%	50.0%	67.9%	0.0%	50.0%	61.5%
30E. Addition of new applications on PTOnet																						
- no/minor impact	55.0%	55.0%	56.4%	44.4%	42.9%	71.4%	57.9%	56.1%	53.3%	53.5%	60.0%	50.0%	33.3%	100.0%	57.1%	52.3%	66.7%	25.0%	48.8%		50.0%	58.5%
- moderate/major impact	45.0%	45.0%	43.6%	55.6%	57.1%	28.6%	42.1%	43.9%	46.7%	46.5%	40.0%	50.0%	66.7%	0.0%	42.9%	47.7%	33.3%	75.0%	51.2%		50.0%	41.5%
30F. Increasing the speed of operation of PTOnet																						
- no/minor impact	35.3%	36.3%	35.4%	33.3%	27.3%	42.9%	48.1%	39.8%	33.3%	32.4%	47.1%	10.0%	28.6%	60.0%	30.0%	32.3%	50.0%	50.0%	28.1%	0.0%	37.0%	32.8%
- moderate/major impact	64.7%	63.7%	64.6%	66.7%	72.7%	57.1%	51.9%	60.2%	66.7%	67.6%	52.9%	90.0%	71.4%	40.0%	70.0%	67.7%	50.0%	50.0%	71.9%	100.0%	63.0%	67.2%
30G. Improving the quality of training																						
- no/minor impact	46.0%	44.5%	48.9%	17.3%	32.6%	43.3%	42.3%	46.6%	40.7%	44.9%	36.8%	30.0%	14.3%	80.0%	25.0%	55.3%	50.0%	42.9%	54.2%	100.0%	65.2%	51.8%
- moderate/major impact	54.0%	55.5%	51.1%	82.7%	67.4%	56.7%	57.7%	53.4%	59.3%	55.1%	63.2%	70.0%	85.7%	20.0%	75.0%	44.7%	50.0%	57.1%	45.8%	0.0%	34.8%	48.2%
30H. Adding advanced training courses																						
- no/minor impact	45.5%	43.8%	47.9%	22.6%	28.3%	35.5%	50.0%	46.2%	49.6%	52.2%	47.4%	30.0%	28.6%	80.0%	55.6%	46.8%	50.0%	33.3%	39.3%	66.7%	54.5%	52.6%
- moderate/major impact	54.5%	56.2%	52.1%	77.4%	71.7%	64.5%	50.0%	53.8%	50.4%	47.8%	52.6%	70.0%	71.4%	20.0%	44.4%	53.2%	50.0%	66.7%	60.7%	33.3%	45.5%	47.4%
30I. Encouraging training by increasing allocation for training																						
- no/minor impact	48.5%	45.6%	44.2%	41.7%	54.1%	53.8%	58.8%	45.8%	45.9%	43.3%	50.0%	40.0%	40.0%	100.0%	50.0%	65.0%	33.3%	62.5%	66.7%	50.0%	66.7%	66.7%
- moderate/major impact	51.5%	54.4%	55.8%	58.3%	45.9%	46.2%	41.2%	54.2%	54.1%	56.7%	50.0%	60.0%	60.0%	0.0%	50.0%	35.0%	66.7%	37.5%	33.3%	50.0%	33.3%	33.3%
30J. Having a computer resource person in each unit																						
- no/minor impact	46.4%	47.7%	56.4%	22.2%	27.9%	27.6%	39.3%	41.9%	35.0%	30.9%	50.0%	27.3%	42.9%	40.0%	40.0%	48.8%	25.0%	22.2%	49.2%	33.3%	52.2%	53.4%
- moderate/major impact	53.6%	52.3%	43.6%	77.8%	72.1%	72.4%	60.7%	58.1%	65.0%	69.1%	50.0%	72.7%	57.1%	60.0%	60.0%	51.2%	75.0%	77.8%	50.8%	66.7%	47.8%	46.6%

PTO FINAL SURVEY RESULTS

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
30K. Access to telephone help hotlines of manufacturers																						
- no/minor impact	72.5%	76.3%	83.9%	38.6%	56.8%	71.4%	81.5%	72.2%	64.5%	73.0%	43.8%	22.2%	71.4%	66.7%	77.8%	62.7%	50.0%	62.5%	59.7%	33.3%	84.0%	59.3%
- moderate/major impact	27.5%	23.7%	16.1%	61.4%	43.2%	28.6%	18.5%	27.8%	35.5%	27.0%	56.3%	77.8%	28.6%	33.3%	22.2%	37.3%	50.0%	37.5%	40.3%	66.7%	16.0%	40.7%
30L. Providing access to PTO systems from your home																						
- no/minor impact	39.9%	43.9%	44.9%	50.0%	35.9%	48.0%	35.7%	42.7%	26.6%	28.8%	20.0%	25.0%	50.0%	20.0%	12.5%	32.2%	25.0%	0.0%	25.5%	66.7%	44.4%	33.9%
- moderate/major impact	60.1%	56.1%	55.1%	50.0%	64.1%	52.0%	64.3%	57.3%	73.4%	71.2%	80.0%	75.0%	50.0%	80.0%	87.5%	67.8%	75.0%	100.0%	74.5%	33.3%	55.6%	66.1%
30M. Providing access to PTO E-Mail from your home																						
- no/minor impact	46.2%	53.1%	58.1%	42.9%	48.7%	44.0%	32.1%	48.4%	33.3%	38.3%	40.0%	12.5%	50.0%	0.0%	12.5%	28.7%	50.0%	0.0%	25.5%	66.7%	25.9%	31.0%
- moderate/major impact	53.8%	46.9%	41.9%	57.1%	51.3%	56.0%	67.9%	51.6%	66.7%	61.7%	60.0%	87.5%	50.0%	100.0%	87.5%	71.3%	50.0%	100.0%	74.5%	33.3%	74.1%	69.0%
30N Providing one log on ID for various systems																						
- no/minor impact	46.5%	46.0%	49.4%	54.3%	44.2%	22.2%	51.7%	35.6%	51.5%	51.6%	58.3%	11.1%	71.4%	80.0%	50.0%	44.7%	0.0%	57.1%	48.4%	33.3%	38.5%	45.8%
- moderate/major impact	53.5%	54.0%	50.6%	45.7%	55.8%	77.8%	48.3%	64.4%	48.5%	48.4%	41.7%	88.9%	28.6%	20.0%	50.0%	55.3%	100.0%	42.9%	51.6%	66.7%	61.5%	54.2%
32. Which category best describes the nature of the work that you do?																						
- Managerial (unspecified)	6.6%	4.3%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	15.1%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
- Supervisory patent examiner	3.9%	4.3%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	5.6%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
- Administrative, Technical, Other	14.3%	7.9%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	9.7%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	38.7%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
- Professional (unspecified)	18.7%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	8.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	37.6%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
- Examiner	47.4%	59.9%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	55.6%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- Clerical	9.1%	8.5%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	16.9%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
33. How long have you worked with PTO?																						
- Less than a year	4.6%	4.9%	7.4%	0.0%	1.8%	0.0%	3.2%	0.9%	3.2%	4.3%	0.0%	8.3%	0.0%	0.0%	0.0%	5.4%	0.0%	11.1%	5.6%	0.0%	3.6%	5.7%
- 1 to 5 years	30.1%	28.5%	30.0%	50.0%	28.1%	3.2%	6.5%	24.1%	38.7%	39.1%	61.9%	33.3%	0.0%	20.0%	30.0%	31.2%	0.0%	44.4%	34.7%	0.0%	17.9%	34.3%
- 5 years or more	65.3%	66.7%	62.6%	50.0%	70.2%	96.8%	90.3%	75.0%	58.1%	56.5%	38.1%	58.3%	100.0%	80.0%	70.0%	63.4%	100.0%	44.4%	59.7%	100.0%	78.6%	60.0%
34. How long have you been a federal employee?																						
- Less than a year	3.4%	4.3%	6.5%	1.6%	1.8%	0.0%	0.0%	0.9%	2.4%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%
- 1 to 5 years	23.6%	24.3%	27.2%	39.3%	15.8%	3.2%	3.2%	20.6%	33.1%	37.7%	47.6%	16.7%	0.0%	20.0%	20.0%	14.2%	0.0%	25.0%	20.0%	0.0%	7.1%	11.4%
- 5 years or more	73.0%	71.4%	66.3%	59.0%	82.5%	96.8%	96.8%	78.5%	64.5%	58.0%	52.4%	83.3%	100.0%	80.0%	80.0%	84.7%	100.0%	75.0%	80.0%	100.0%	92.9%	85.7%
35. What is your grade?																						
- 5 to 8	14.7%	13.5%	4.0%	90.0%	38.6%	3.2%	3.2%	1.9%	19.5%	0.0%	85.0%	33.3%	28.6%	20.0%	0.0%	13.6%	25.0%	55.6%	16.9%	66.7%	3.6%	5.8%
- 9 to 12	23.4%	24.0%	25.6%	8.3%	42.1%	3.2%	6.5%	27.8%	18.7%	21.7%	5.0%	25.0%	28.6%	0.0%	20.0%	26.6%	0.0%	33.3%	33.8%	0.0%	0.0%	31.9%
- 13 to 14	46.4%	49.9%	64.0%	0.0%	12.3%	3.2%	35.5%	59.3%	50.4%	73.9%	0.0%	25.0%	14.3%	20.0%	60.0%	34.2%	0.0%	0.0%	42.3%	33.3%	46.4%	27.5%
- 15 and over	14.6%	12.0%	6.5%	0.0%	3.5%	90.3%	54.8%	10.2%	9.8%	4.3%	0.0%	16.7%	28.6%	60.0%	20.0%	23.9%	75.0%	0.0%	5.6%	0.0%	50.0%	33.3%
- Ungraded	0.9%	0.6%	0.0%	1.7%	3.5%	0.0%	0.0%	0.9%	1.6%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	11.1%	1.4%	0.0%	0.0%	1.4%

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
36. What hours do you work?																						
36A. Regular hours																						
- no	4.5%	4.6%	4.1%	6.8%	5.2%	15.6%	3.1%	4.6%	8.0%	11.4%	4.8%	0.0%	0.0%	0.0%	10.0%	5.9%	0.0%	0.0%	5.6%	0.0%	0.0%	7.2%
- yes	95.5%	95.4%	95.9%	93.2%	94.8%	84.4%	96.9%	95.4%	92.0%	88.6%	95.2%	100.0%	100.0%	100.0%	90.0%	94.1%	100.0%	100.0%	94.4%	100.0%	100.0%	92.8%
36B. Early weekday mornings																						
- no	72.2%	72.1%	73.5%	80.3%	79.3%	63.3%	51.6%	65.3%	64.0%	57.7%	71.4%	76.9%	75.0%	100.0%	63.6%	75.3%	100.0%	88.9%	73.2%	100.0%	75.0%	71.2%
- yes	27.8%	27.9%	26.5%	19.7%	20.7%	36.7%	48.4%	34.7%	36.0%	42.3%	28.6%	23.1%	25.0%	0.0%	36.4%	24.7%	0.0%	11.1%	26.8%	0.0%	25.0%	28.8%
36C. Weekday evenings																						
- no	81.9%	82.4%	82.2%	90.2%	79.0%	75.0%	80.8%	83.3%	76.8%	73.9%	81.0%	83.3%	71.4%	80.0%	80.0%	81.7%	100.0%	100.0%	87.1%	100.0%	46.4%	84.6%
- yes	18.1%	17.6%	17.8%	9.8%	21.0%	25.0%	19.2%	16.7%	23.2%	26.1%	19.0%	16.7%	28.6%	20.0%	20.0%	18.3%	0.0%	0.0%	12.9%	0.0%	53.6%	15.4%
36D. Saturdays and Sundays																						
- no	69.7%	65.9%	62.1%	76.3%	78.0%	62.5%	66.7%	70.2%	68.0%	68.6%	71.4%	66.7%	71.4%	20.0%	80.0%	81.2%	75.0%	77.8%	87.1%	100.0%	64.3%	80.0%
- yes	30.3%	34.1%	37.9%	23.7%	22.0%	37.5%	33.3%	29.8%	32.0%	31.4%	28.6%	33.3%	28.6%	80.0%	20.0%	18.8%	25.0%	22.2%	12.9%	0.0%	35.7%	20.0%
37. What is the highest level of education that you have completed?																						
- High school/some college	19.8%	14.9%	0.9%	86.9%	64.9%	6.5%	6.5%	8.4%	27.4%	0.0%	90.5%	75.0%	42.9%	20.0%	20.0%	28.3%	25.0%	88.9%	35.7%	66.7%	14.3%	17.1%
- College graduate	39.5%	48.9%	56.4%	9.8%	17.5%	45.2%	51.6%	57.9%	4.8%	0.0%	4.8%	8.3%	14.3%	0.0%	30.0%	31.0%	0.0%	11.1%	47.1%	33.3%	14.3%	25.7%
- Advanced degree	39.4%	34.9%	41.3%	1.6%	15.8%	48.4%	41.9%	32.7%	65.3%	97.1%	0.0%	16.7%	42.9%	80.0%	50.0%	39.7%	75.0%	0.0%	17.1%	0.0%	67.9%	55.7%
- Other	1.3%	1.3%	1.4%	1.6%	1.8%	0.0%	0.0%	0.9%	2.4%	2.9%	4.8%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	3.6%	1.4%
38. What is your age?																						
- Under 30	20.6%	24.2%	25.7%	41.0%	22.8%	3.2%	3.2%	21.3%	15.6%	4.4%	60.0%	33.3%	0.0%	0.0%	0.0%	13.1%	0.0%	33.3%	15.5%	0.0%	0.0%	14.7%
- 30-49	62.4%	59.5%	61.4%	50.8%	59.6%	61.3%	61.3%	55.6%	77.9%	89.7%	40.0%	41.7%	100.0%	80.0%	100.0%	65.0%	100.0%	44.4%	63.4%	66.7%	78.6%	61.8%
- 50 or older	17.0%	16.3%	12.9%	8.2%	17.5%	35.5%	35.5%	23.1%	6.6%	5.9%	0.0%	25.0%	0.0%	20.0%	0.0%	21.9%	0.0%	22.2%	21.1%	33.3%	21.4%	23.5%
39. What is your level of computer expertise?																						
- Beginner to novice	21.9%	22.0%	18.6%	52.5%	17.5%	32.3%	29.0%	15.7%	25.8%	24.6%	42.9%	25.0%	0.0%	20.0%	20.0%	15.7%	25.0%	44.4%	15.5%	0.0%	14.3%	12.9%
- Intermediate	49.7%	51.9%	55.0%	34.4%	56.1%	48.4%	41.9%	50.9%	50.8%	53.6%	33.3%	58.3%	85.7%	40.0%	40.0%	42.7%	25.0%	55.6%	31.0%	33.3%	42.9%	54.3%
- Advanced to expert	28.4%	26.1%	26.3%	13.1%	26.3%	19.4%	29.0%	33.3%	23.4%	21.7%	23.8%	16.7%	14.3%	40.0%	40.0%	41.6%	50.0%	0.0%	53.5%	66.7%	42.9%	32.9%
40. Participants in BPR process																						
- Yes	27.7%	20.0%	14.5%	25.4%	18.2%	43.3%	61.3%	20.8%	41.0%	27.9%	45.0%	50.0%	85.7%	80.0%	60.0%	45.1%	75.0%	22.2%	45.1%	0.0%	71.4%	37.7%
- No	72.3%	80.0%	85.5%	74.6%	81.8%	56.7%	38.7%	79.2%	59.0%	72.1%	55.0%	50.0%	14.3%	20.0%	40.0%	54.9%	25.0%	77.8%	54.9%	100.0%	28.6%	62.3%
41. What office are you assigned to?																						
- Patent	69.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%														
- Trademark	12.1%								100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%							
- Central	18.1%															100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
- Undeclared																						

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
42. What impact would you say the following changes to PALM would have on your ability to do your job? (PALM USERS ONLY)																						
42Sa. A system display that reaches you at you desktop																						
- no/minor impact	12.3%	10.3%	10.1%	19.6%	19.2%	3.8%	8.7%	4.4%	25.0%		25.0%	33.3%			0.0%	35.7%	100.0%	50.0%	42.9%	50.0%	33.3%	18.8%
- moderate/major impact	87.7%	89.7%	89.9%	80.4%	80.8%	96.2%	91.3%	95.6%	75.0%		75.0%	66.7%			100.0%	64.3%	0.0%	50.0%	57.1%	50.0%	66.7%	81.3%
42Sb. A system with fewer outages																						
- no/minor impact	11.2%	9.6%	9.9%	8.7%	22.2%	3.7%	17.4%	2.9%	12.5%		25.0%	0.0%			0.0%	34.9%	50.0%	50.0%	40.0%	50.0%	33.3%	25.0%
- moderate/major impact	88.8%	90.4%	90.1%	91.3%	77.8%	96.3%	82.6%	97.1%	87.5%		75.0%	100.0%			100.0%	65.1%	50.0%	50.0%	60.0%	50.0%	66.7%	75.0%
42Sc. A system whose response time does not slow during peak periods																						
- no/minor impact	9.1%	7.9%	9.0%	8.7%	7.4%	0.0%	17.4%	1.5%	12.5%		25.0%	0.0%			0.0%	28.6%	50.0%	0.0%	40.0%	0.0%	16.7%	25.0%
- moderate/major impact	90.9%	92.1%	91.0%	91.3%	92.6%	100.0%	82.6%	98.5%	87.5%		75.0%	100.0%			100.0%	71.4%	50.0%	100.0%	60.0%	100.0%	83.3%	75.0%
42Sd. A more adequate supply of bar code readers																						
- no/minor impact	22.6%	19.1%	20.5%	10.9%	26.9%	7.7%	30.4%	14.7%	37.5%		25.0%	33.3%			100.0%	71.4%	100.0%	50.0%	64.3%	50.0%	83.3%	75.0%
- moderate/major impact	77.4%	80.9%	79.5%	89.1%	73.1%	92.3%	69.6%	85.3%	62.5%		75.0%	66.7%			0.0%	28.6%	0.0%	50.0%	35.7%	50.0%	16.7%	25.0%
42Se. Bar code readers that are more reliable																						
- no/minor impact	22.3%	18.6%	20.9%	4.3%	29.6%	11.1%	17.4%	14.9%	37.5%		50.0%	33.3%			0.0%	75.0%	100.0%	100.0%	76.9%	50.0%	83.3%	66.7%
- moderate/major impact	77.7%	81.4%	79.1%	95.7%	70.4%	88.9%	82.6%	85.1%	62.5%		50.0%	66.7%			100.0%	25.0%	0.0%	0.0%	23.1%	50.0%	16.7%	33.3%
42Sf. A system whose commands rely on words																						
- no/minor impact	28.5%	26.1%	26.4%	23.9%	33.3%	14.8%	34.8%	25.0%	37.5%		75.0%	0.0%			0.0%	45.2%	50.0%	100.0%	60.0%	50.0%	50.0%	25.0%
- moderate/major impact	71.5%	73.9%	73.6%	76.1%	66.7%	85.2%	65.2%	75.0%	62.5%		25.0%	100.0%			100.0%	54.8%	50.0%	0.0%	40.0%	50.0%	50.0%	75.0%
42Sg. A system with functions that are standard in software nowadays																						
- no/minor impact	11.4%	10.3%	10.2%	8.7%	18.5%	3.7%	17.4%	8.8%	14.3%		33.3%	0.0%			0.0%	26.2%	50.0%	0.0%	33.3%	50.0%	33.3%	12.5%
- moderate/major impact	88.6%	89.7%	89.8%	91.3%	81.5%	96.3%	82.6%	91.2%	85.7%		66.7%	100.0%			100.0%	73.8%	50.0%	100.0%	66.7%	50.0%	66.7%	87.5%
42Sh. Eliminatin of the need to reenter ID numbers on each screen																						
- no/minor impact	21.6%	18.7%	19.3%	28.3%	22.2%	0.0%	30.4%	10.4%	42.9%		50.0%	50.0%			0.0%	62.5%	50.0%	0.0%	61.5%	50.0%	66.7%	68.8%
- moderate/major impact	78.4%	81.3%	80.7%	71.7%	77.8%	100.0%	69.6%	89.6%	57.1%		50.0%	50.0%			100.0%	37.5%	50.0%	100.0%	38.5%	50.0%	33.3%	31.3%
42Si. An on-line menu of all screens																						
- no/minor impact	12.0%	9.6%	10.2%	12.8%	11.1%	0.0%	17.4%	4.4%	12.5%		25.0%	0.0%			0.0%	39.5%	50.0%	0.0%	60.0%	50.0%	33.3%	25.0%
- moderate/major impact	88.0%	90.4%	89.8%	87.2%	88.9%	100.0%	82.6%	95.6%	87.5%		75.0%	100.0%			100.0%	60.5%	50.0%	100.0%	40.0%	50.0%	66.7%	75.0%
42Sj. Redesigned screens that use plain English																						
- no/minor impact	9.4%	7.7%	6.9%	12.8%	11.1%	3.7%	13.0%	7.4%	12.5%		25.0%	0.0%			0.0%	31.0%	50.0%	100.0%	53.3%	50.0%	0.0%	12.5%
- moderate/major impact	90.6%	92.3%	93.1%	87.2%	88.9%	96.3%	87.0%	92.6%	87.5%		75.0%	100.0%			100.0%	69.0%	50.0%	0.0%	46.7%	50.0%	100.0%	87.5%

PTO FINAL SURVEY RESULTS

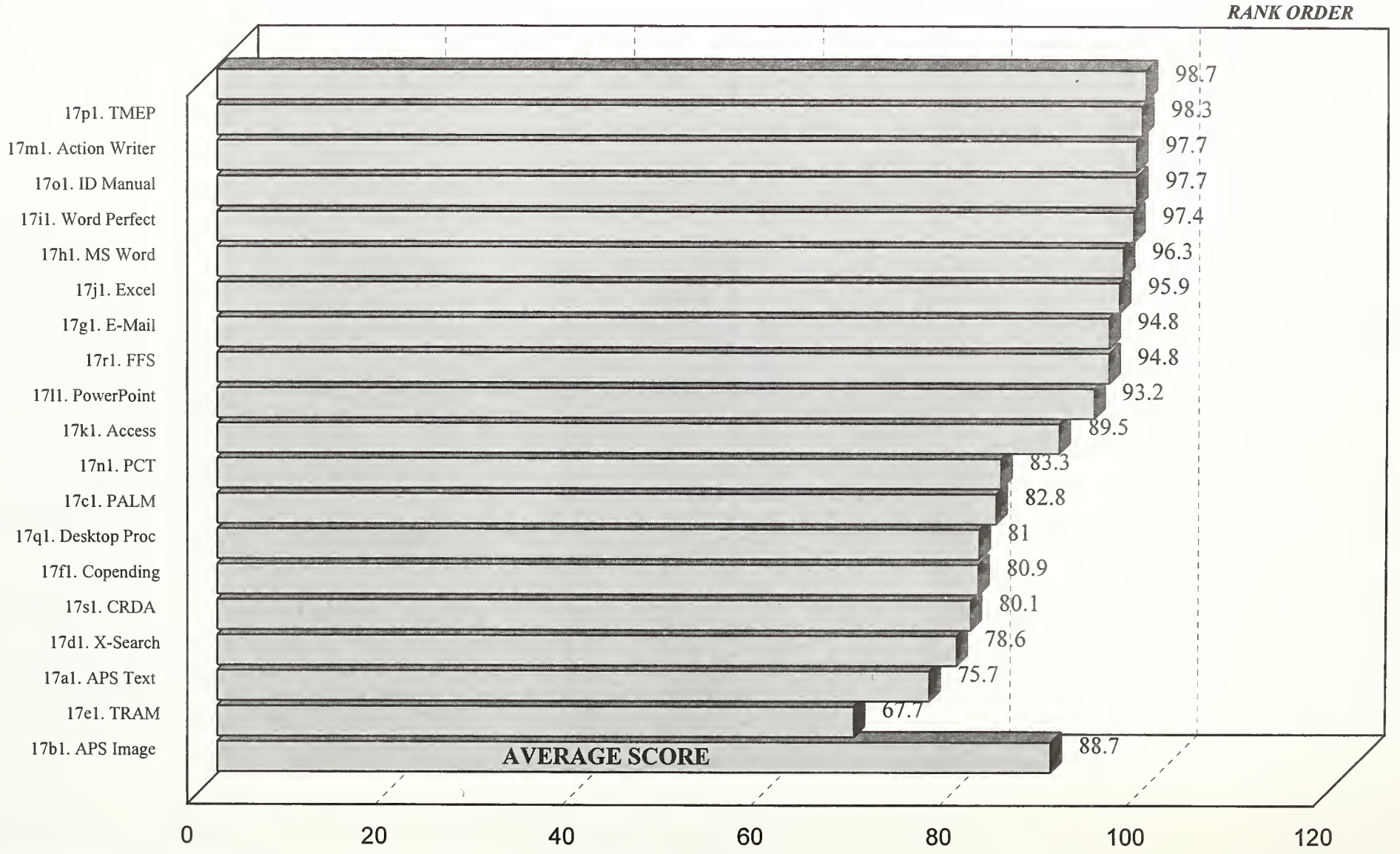
	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler	Adm+	SPE	O. man.	O prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
42Sk. Three items clearly displayed on each screen																						
- no/minor impact	16.9%	15.5%	16.5%	6.4%	23.1%	11.1%	21.7%	13.4%	25.0%		50.0%	0.0%			0.0%	42.1%	50.0%	0.0%	63.6%	50.0%	16.7%	37.5%
- moderate/major impact	83.1%	84.5%	83.5%	93.6%	76.9%	88.9%	78.3%	86.6%	75.0%		50.0%	100.0%			100.0%	57.9%	50.0%	100.0%	36.4%	50.0%	83.3%	62.5%
42Sl. A screen that shows a paper trail of touches																						
- no/minor impact	20.9%	17.7%	18.5%	10.9%	25.9%	3.7%	20.8%	19.4%	62.5%		75.0%	33.3%			100.0%	56.4%	100.0%	100.0%	66.7%	100.0%	33.3%	43.8%
- moderate/major impact	79.1%	82.3%	81.5%	89.1%	74.1%	96.3%	79.2%	80.6%	37.5%		25.0%	66.7%			0.0%	43.6%	0.0%	0.0%	33.3%	0.0%	66.7%	56.3%
43sm. Error messages that indicate what is wrong																						
- no/minor impact	9.7%	8.1%	9.1%	4.3%	18.5%	0.0%	12.5%	3.0%	37.5%		50.0%	33.3%			0.0%	35.0%	50.0%	100.0%	46.2%	50.0%	16.7%	25.0%
- moderate/major impact	90.3%	91.9%	90.9%	95.7%	81.5%	100.0%	87.5%	97.0%	62.5%		50.0%	66.7%			100.0%	65.0%	50.0%	0.0%	53.8%	50.0%	83.3%	75.0%
42Sn. Ability of add notes to PALM																						
- no/minor impact	28.0%	25.9%	30.1%	10.9%	25.9%	14.8%	25.0%	17.9%	50.0%		50.0%	33.3%			100.0%	48.7%	50.0%	100.0%	50.0%	50.0%	33.3%	50.0%
- moderate/major impact	72.0%	74.1%	69.9%	89.1%	74.1%	85.2%	75.0%	82.1%	50.0%		50.0%	66.7%			0.0%	51.3%	50.0%	0.0%	50.0%	50.0%	66.7%	50.0%
42So. Ability to pull up on-line reports																						
- no/minor impact	31.9%	28.0%	26.4%	26.7%	48.1%	7.4%	43.5%	32.8%	37.5%		50.0%	33.3%			0.0%	81.1%	50.0%	100.0%	81.8%	50.0%	83.3%	86.7%
- moderate/major impact	68.1%	72.0%	73.6%	73.3%	51.9%	92.6%	56.5%	67.2%	62.5%		50.0%	66.7%			100.0%	18.9%	50.0%	0.0%	18.2%	50.0%	16.7%	13.3%
42Sp. A PALM report that shows your total examining hours																						
- no/minor impact	38.7%	35.0%	30.6%	50.0%	73.1%	3.7%	60.9%	38.5%	57.1%		75.0%	0.0%			100.0%	83.3%	100.0%	0.0%	80.0%	50.0%	100.0%	86.7%
- moderate/major impact	61.3%	65.0%	69.4%	50.0%	26.9%	96.3%	39.1%	61.5%	42.9%		25.0%	100.0%			0.0%	16.7%	0.0%	100.0%	20.0%	50.0%	0.0%	13.3%
42Sq. A feature that posts an alert on your screen for revived cases																						
- no/minor impact	22.7%	18.4%	16.2%	23.3%	51.9%	7.4%	30.4%	13.6%	37.5%		50.0%	33.3%			0.0%	77.8%	100.0%	0.0%	70.0%	50.0%	100.0%	80.0%
- moderate/major impact	77.3%	81.6%	83.8%	76.7%	48.1%	92.6%	69.6%	86.4%	62.5%		50.0%	66.7%			100.0%	22.2%	0.0%	100.0%	30.0%	50.0%	0.0%	20.0%
42Sr. A flag in the system that says related applications on file																						
- no/minor impact	11.6%	8.7%	5.0%	21.7%	40.7%	0.0%	20.8%	6.1%	50.0%		75.0%	33.3%			0.0%	41.0%	50.0%	0.0%	58.3%	50.0%	66.7%	18.8%
- moderate/major impact	88.4%	91.3%	95.0%	78.3%	59.3%	100.0%	79.2%	93.9%	50.0%		25.0%	66.7%			100.0%	59.0%	50.0%	100.0%	41.7%	50.0%	33.3%	81.3%
42Ss. A flag in the system that says continuation has been filed																						
- no/minor impact	11.8%	8.8%	6.9%	23.9%	29.6%	0.0%	16.7%	1.5%	37.5%		75.0%	0.0%			0.0%	48.7%	50.0%	0.0%	58.3%	50.0%	66.7%	37.5%
- moderate/major impact	88.2%	91.2%	93.1%	76.1%	70.4%	100.0%	83.3%	98.5%	62.5%		25.0%	100.0%			100.0%	51.3%	50.0%	100.0%	41.7%	50.0%	33.3%	62.5%
42St. A flag in the system that says paper x has been filed but not matched with file																						
- no/minor impact	12.6%	8.6%	7.7%	10.6%	25.9%	0.0%	20.8%	4.5%	50.0%		75.0%	33.3%			0.0%	55.3%	50.0%	100.0%	66.7%	50.0%	50.0%	46.7%
- moderate/major impact	87.4%	91.4%	92.3%	89.4%	74.1%	100.0%	79.2%	95.5%	50.0%		25.0%	66.7%			100.0%	44.7%	50.0%	0.0%	33.3%	50.0%	50.0%	53.3%
42Su. In general more fields in the system to indicate presence of necessary parts																						
- no/minor impact	24.7%	22.1%	21.3%	21.7%	37.0%	18.5%	25.0%	21.2%	25.0%		50.0%	0.0%			0.0%	55.0%	100.0%	50.0%	66.7%	50.0%	50.0%	43.8%
- moderate/major impact	75.3%	77.9%	78.7%	78.3%	63.0%	81.5%	75.0%	78.8%	75.0%		50.0%	100.0%			100.0%	45.0%	0.0%	50.0%	33.3%	50.0%	50.0%	56.3%

	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.
number of respondents":	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
42Sv. In genral the capability to track two or more parallel processes																						
- no/minor impact	34.5%	30.7%	28.5%	40.9%	50.0%	25.9%	30.4%	30.2%	37.5%		50.0%	33.3%			0.0%	75.7%	100.0%	50.0%	80.0%	50.0%	83.3%	73.3%
- moderate/major impact	65.5%	69.3%	71.5%	59.1%	50.0%	74.1%	69.6%	69.8%	62.5%		50.0%	66.7%			100.0%	24.3%	0.0%	50.0%	20.0%	50.0%	16.7%	26.7%
42Sw. Bar code stickers to be sent to the applicant's attorney																						
- no/minor impact	32.3%	29.5%	31.0%	35.6%	37.0%	11.1%	20.8%	24.6%	50 0%		50.0%	33.3%			100.0%	62.2%	100.0%	100.0%	72.7%	50.0%	50.0%	53.3%
- moderate/major impact	67.7%	70.5%	69.0%	64.4%	63.0%	88.9%	79.2%	75.4%	50.0%		50.0%	66.7%			0.0%	37.8%	0.0%	0.0%	27.3%	50.0%	50.0%	46.7%
42Sx. More reliance on on-line, real time reports																						
- no/minor impact	35.4%	32.7%	35.9%	40.0%	33.3%	3.7%	20.8%	25.8%	28.6%		50.0%	0.0%			0.0%	65.8%	100.0%	100.0%	58.3%	50.0%	50.0%	73.3%
- moderate/major impact	64.6%	67.3%	64.1%	60.0%	66.7%	96.3%	79.2%	74.2%	71.4%		50.0%	100.0%			100.0%	34.2%	0.0%	0.0%	41.7%	50.0%	50.0%	26.7%
42Sy. Capability to download raw data																						
- no/minor impact	48.0%	46.6%	52.5%	44.4%	51.9%	14.8%	20.8%	36.4%	62.5%		75.0%	33.3%			100.0%	53.8%	100.0%	100.0%	53.8%	0.0%	33.3%	60.0%
- moderate/major impact	52.0%	53.4%	47.5%	55.6%	48.1%	85.2%	79.2%	63.6%	37.5%		25.0%	66.7%			0.0%	46.2%	0.0%	0.0%	46.2%	100.0%	66.7%	40.0%
42Sz. Capability to search on full application title and other terms																						
- no/minor impact	25.1%	23.6%	21.9%	34.9%	44.4%	7.4%	26.1%	22.7%	37.5%		50.0%	33.3%			0.0%	38.5%	50.0%	100.0%	58.3%	50.0%	33.3%	18.8%
- moderate/major impact	74.9%	76.4%	78.1%	65.1%	55.6%	92.6%	73.9%	77.3%	62.5%		50.0%	66.7%			100.0%	61.5%	50.0%	0.0%	41.7%	50.0%	66.7%	81.3%
42Saa. Ability to search abandoned cases																						
- no/minor impact	25.2%	23.3%	21.0%	28.9%	48.1%	7.4%	41.7%	21.2%	25.0%		50.0%	0.0%			0.0%	47.5%	50.0%	50.0%	58.3%	50.0%	50.0%	37.5%
- moderate/major impact	74.8%	76.7%	79.0%	71.1%	51.9%	92.6%	58.3%	78.8%	75.0%		50.0%	100.0%			100.0%	52.5%	50.0%	50.0%	41.7%	50.0%	50.0%	62.5%
42Sbb. A system feature that allows you to wand the case in even if the last person failed to wand it out																						
- no/minor impact	23.5%	21.7%	25.9%	11.1%	29.6%	3.7%	16.7%	12.1%	37.5%		50.0%	33.3%			0.0%	50.0%	50.0%	100.0%	58.3%	50.0%	16.7%	53.3%
- moderate/major impact	76.5%	78.3%	74.1%	88.9%	70.4%	96.3%	83.3%	87.9%	62.5%		50.0%	66.7%			100.0%	50.0%	50.0%	0.0%	41.7%	50.0%	83.3%	46.7%
42Scc. A personal bar code on the flip side of your ID badge																						
- no/minor impact	28.2%	26.0%	30.3%	19.6%	33.3%	0.0%	29.2%	13.6%	25.0%		25.0%	33.3%			0.0%	55.0%	50.0%	50.0%	66.7%	0.0%	16.7%	68.8%
- moderate/major impact	71.8%	74.0%	69.7%	80.4%	66.7%	100.0%	70.8%	86.4%	75.0%		75.0%	66.7%			100.0%	45.0%	50.0%	50.0%	33.3%	100.0%	83.3%	31.3%
42Sdd. A system that accepts your order even if someone else has the file																						
- no/minor impact	12.7%	10.0%	8.5%	17.8%	25.9%	0.0%	16.7%	7.6%	25.0%		25.0%	33.3%			0.0%	44.7%	50.0%	100.0%	50.0%	0.0%	33.3%	46.7%
- moderate/major impact	87.3%	90.0%	91.5%	82.2%	74.1%	100.0%	83.3%	92.4%	75.0%		75.0%	66.7%			100.0%	55.3%	50.0%	0.0%	50.0%	100.0%	66.7%	53.3%
42See. A system feature that puts out an automatic search if the case doesn't show up where wanded to																						
- no/minor impact	12.6%	11.2%	9.9%	12.8%	29.6%	7.4%	16.7%	9.0%								38.5%	50.0%	100.0%	50.0%	50.0%	16.7%	31.3%
- moderate/major impact	87.4%	88.8%	90.1%	87.2%	70.4%	92.6%	83.3%	91.0%	100.0%		100.0%	100.0%			100.0%	61.5%	50.0%	0.0%	50.0%	50.0%	83.3%	68.8%

PTO FINAL SURVEY RESULTS

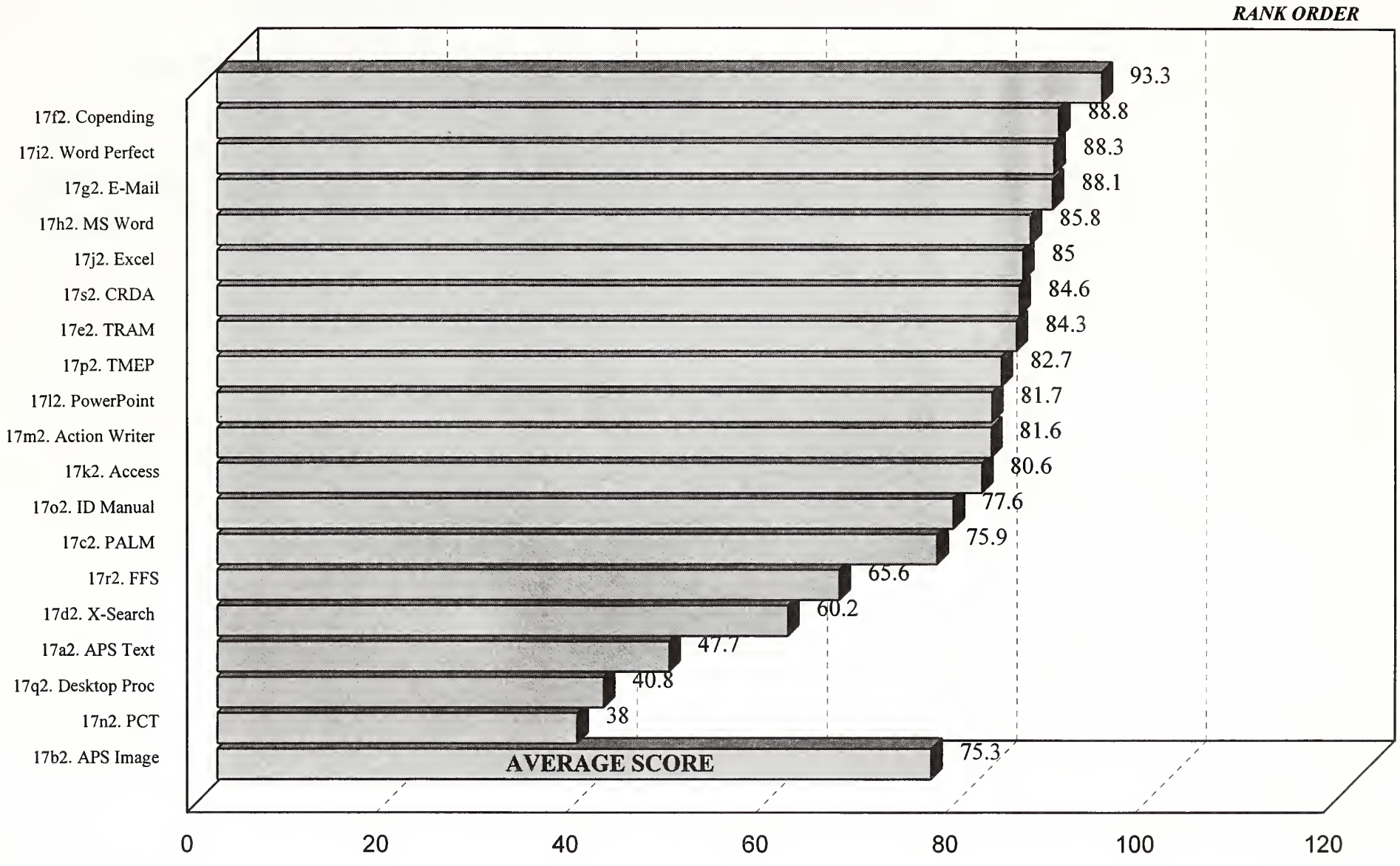
	All	OFFICE OF PATENT							OFFICE OF TRADEMARK							OTHER OFFICES						
	Offs.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+.	SPE	O. man.	O. prof.	All	Exam.	Cler.	Adm+	SPE	O. man.	O. prof.
number of respondents:*	(1112)	(723)	(430)	(61)	(57)	(31)	(31)	(108)	(125)	(69)	(21)	(12)	(7)	(5)	(10)	(188)	(4)	(9)	(72)	(3)	(28)	(70)
42Sff. More detailed location reports																						
- no/minor impact	11.8%	9.5%	7.4%	21.3%	33.3%	0.0%	16.7%	4.5%	25.0%		50.0%	0.0%			0.0%	44.7%	50.0%	100.0%	63.6%	50.0%	16.7%	37.5%
- moderate/major impact	88.2%	90.5%	92.6%	78.7%	66.7%	100.0%	83.3%	95.5%	75.0%		50.0%	100.0%			100.0%	55.3%	50.0%	0.0%	36.4%	50.0%	83.3%	62.5%
42Sgg. Training that is available when you need it																						
- no/minor impact	14.9%	13.7%	15.4%	4.3%	18.5%	7.4%	16.7%	10.4%	12.5%		25.0%	0.0%			0.0%	36.6%	50.0%	0.0%	46.2%	50.0%	33.3%	31.3%
- moderate/major impact	85.1%	86.3%	84.6%	95.7%	81.5%	92.6%	83.3%	89.6%	87.5%		75.0%	100.0%			100.0%	63.4%	50.0%	100.0%	53.8%	50.0%	66.7%	68.8%
42Shh. An updated manual that is better organized																						
- no/minor impact	11.0%	9.5%	9.9%	8.5%	14.8%	0.0%	16.7%	7.5%	25.0%		50.0%	0.0%			0.0%	32.5%	50.0%	0.0%	38.5%	50.0%	33.3%	25.0%
- moderate/major impact	89.0%	90.5%	90.1%	91.5%	85.2%	100.0%	83.3%	92.5%	75.0%		50.0%	100.0%			100.0%	67.5%	50.0%	100.0%	61.5%	50.0%	66.7%	75.0%
42Sii. Online manuals and documentation																						
- no/minor impact	22.6%	22.8%	26.0%	12.8%	18.5%	7.4%	33.3%	16.4%	25.0%		50.0%	0.0%			0.0%	25.0%	100.0%	0.0%	23.1%	0.0%	50.0%	12.5%
- moderate/major impact	77.4%	77.2%	74.0%	87.2%	81.5%	92.6%	66.7%	83.6%	75.0%		50.0%	100.0%			100.0%	75.0%	0.0%	100.0%	76.9%	100.0%	50.0%	87.5%

SOFTWARE APPLICATIONS ASSESSMENT
"Availability for Your Use"
All PTO Offices



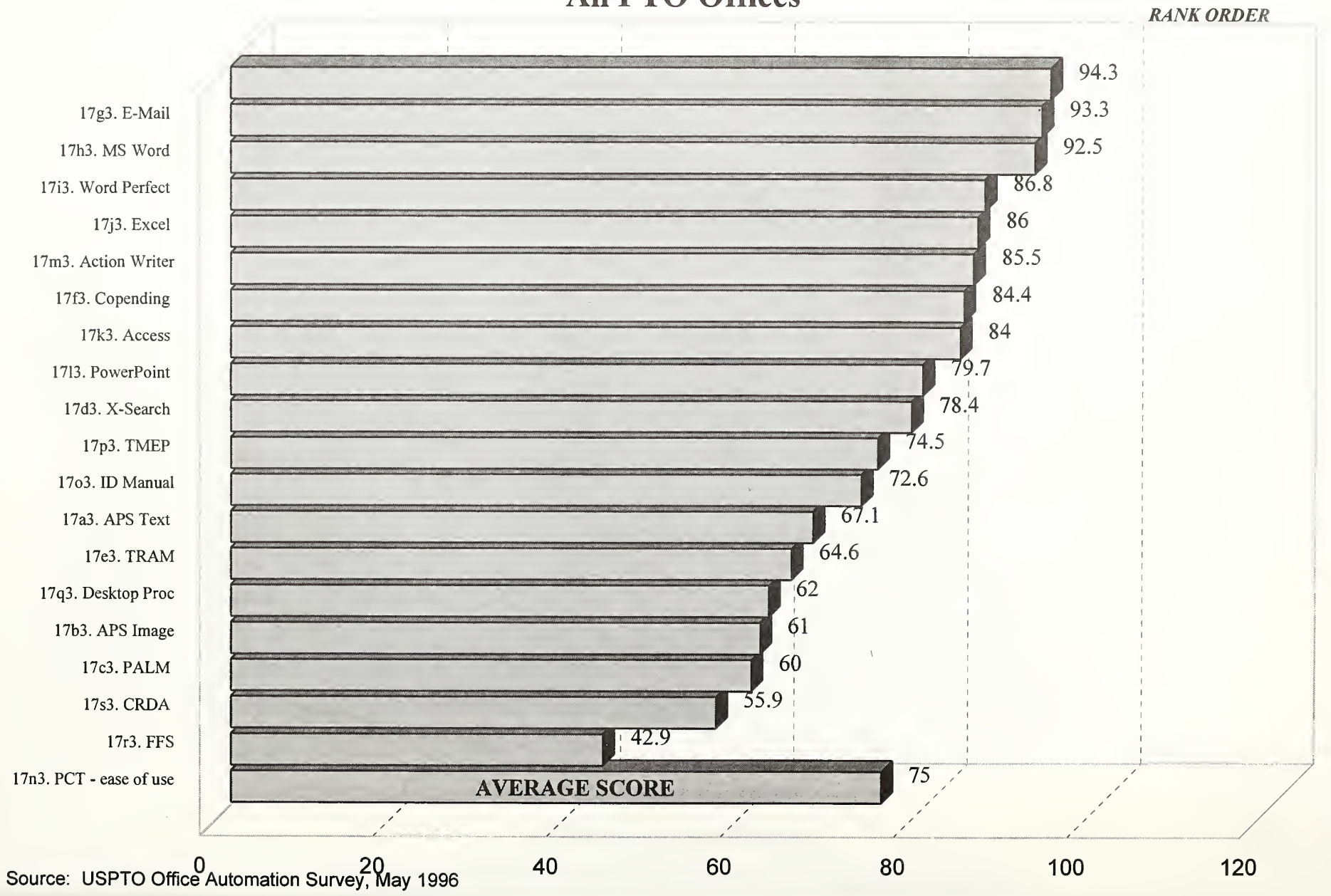
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Speed of Response"
All PTO Offices



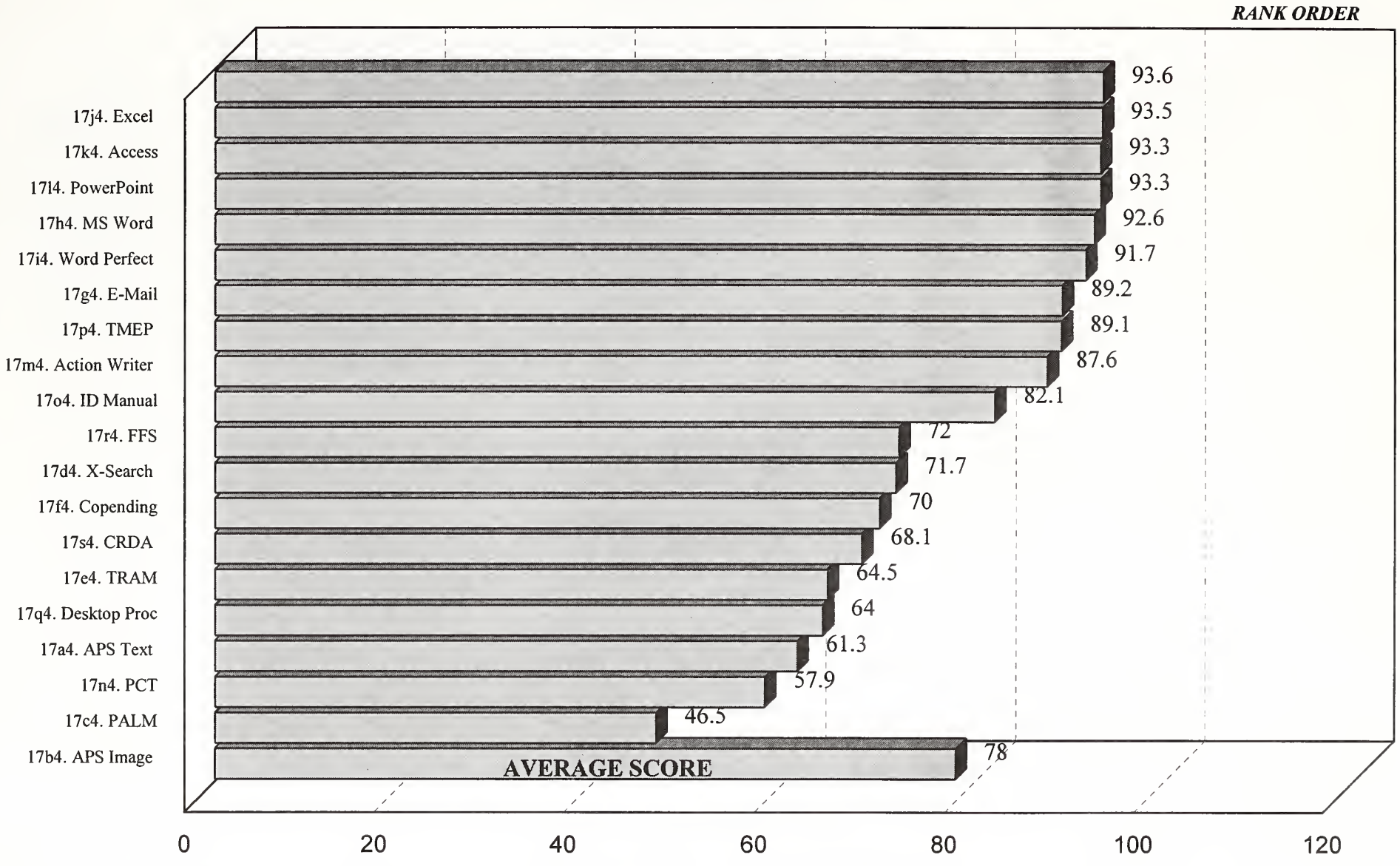
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Ease of Use"
All PTO Offices



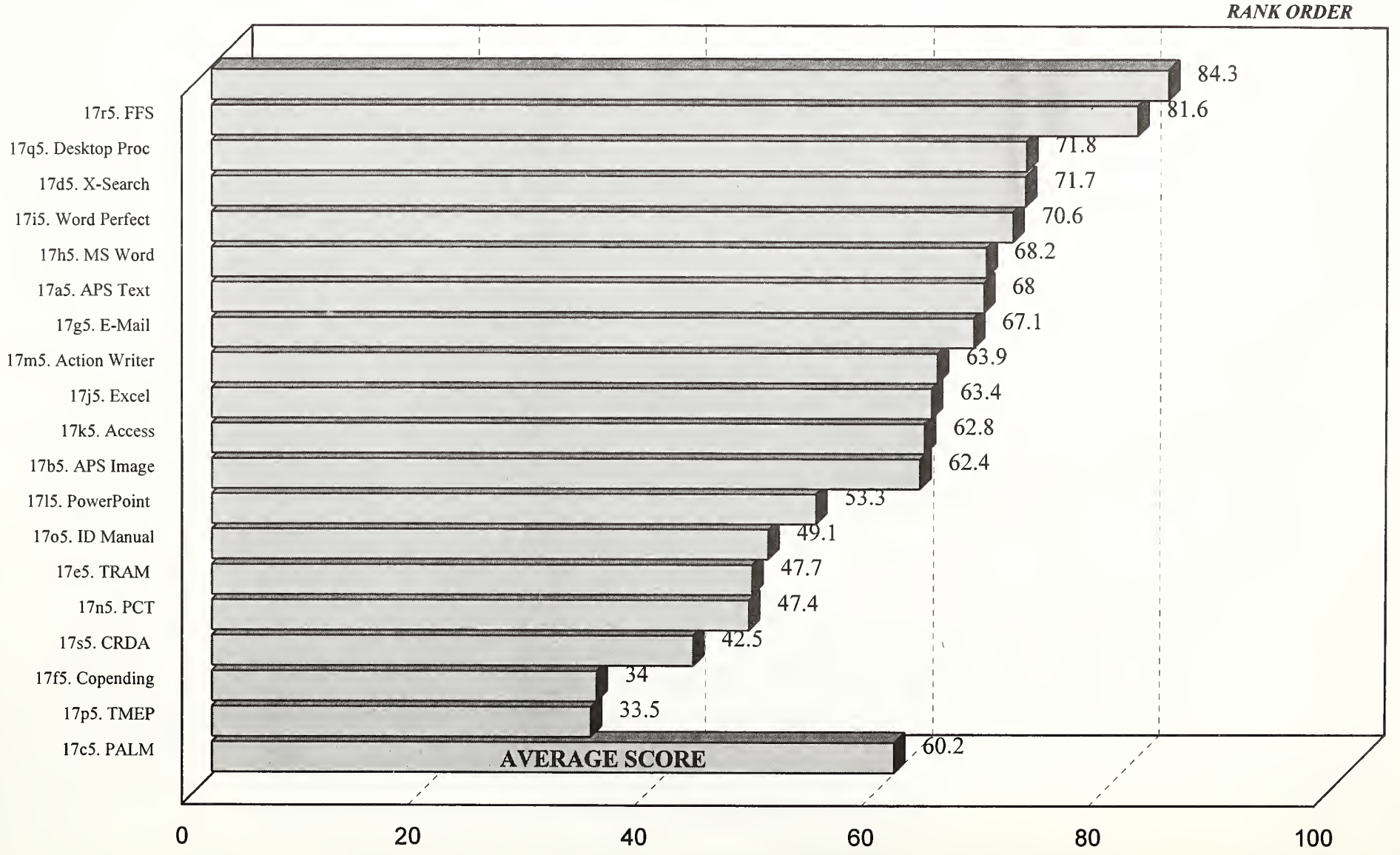
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Reliability (Freedom From Downtime, Problems)"
All PTO Offices



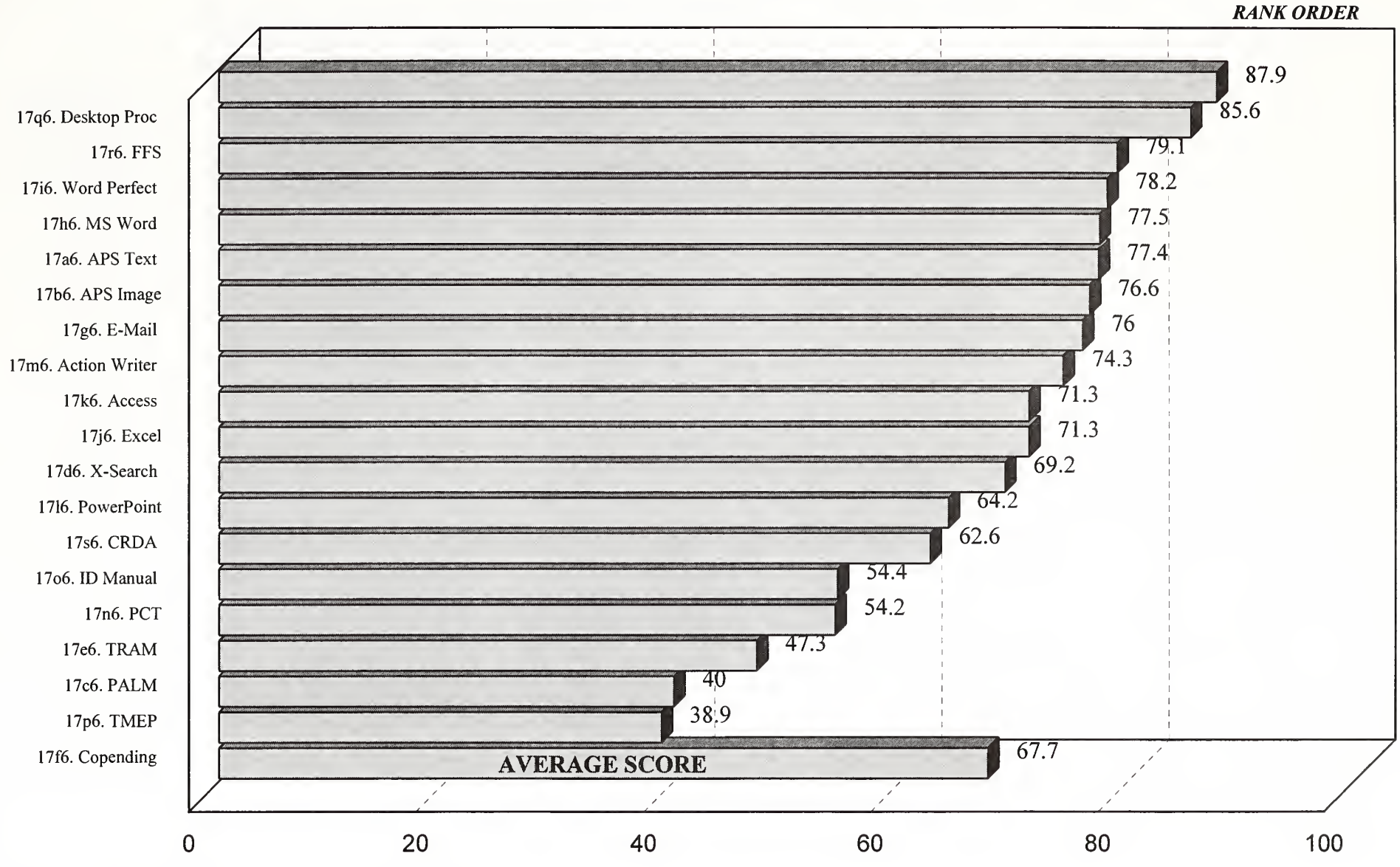
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Availability of Training"
All PTO Offices



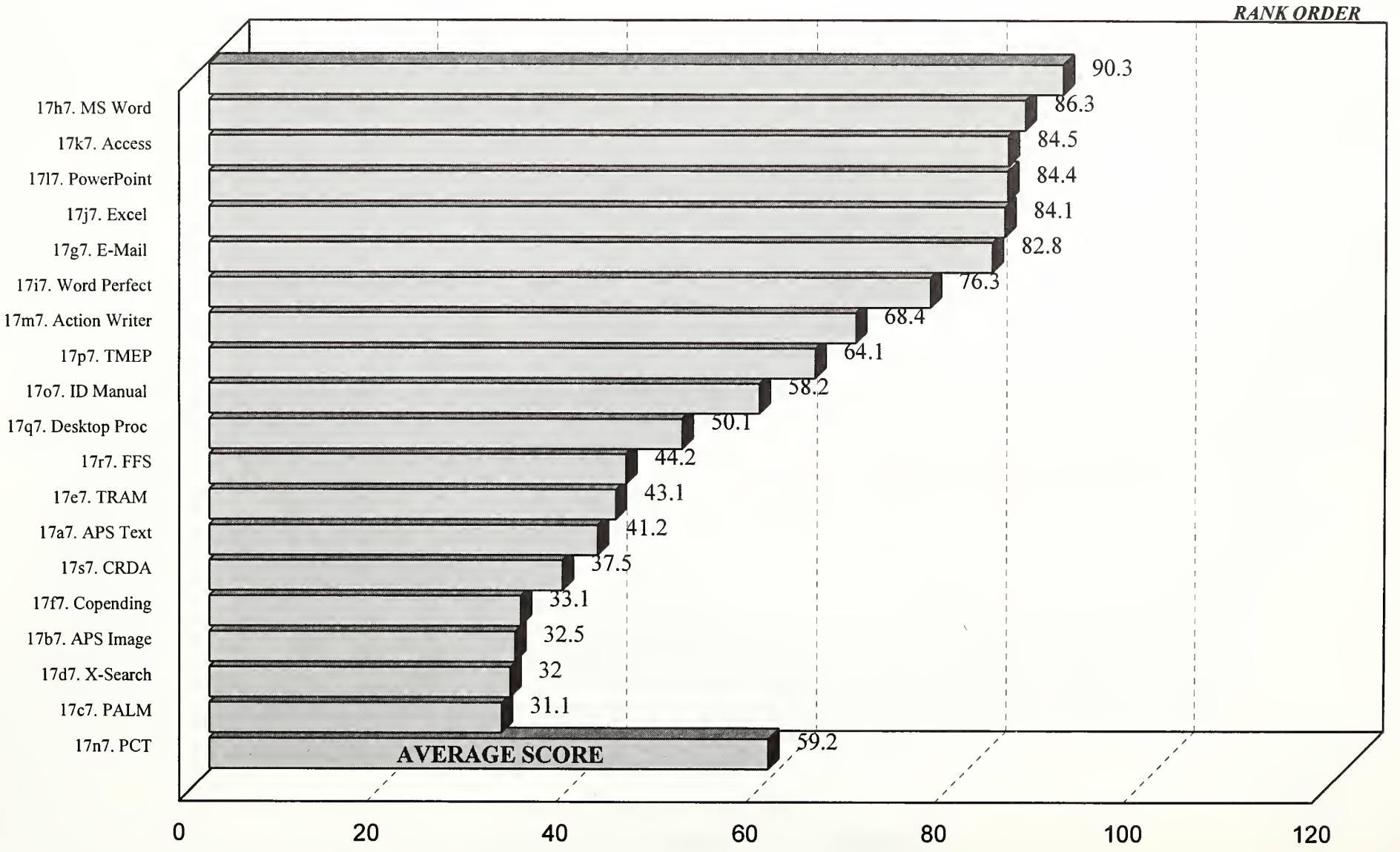
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Overall Quality of Training"
All PTO Offices



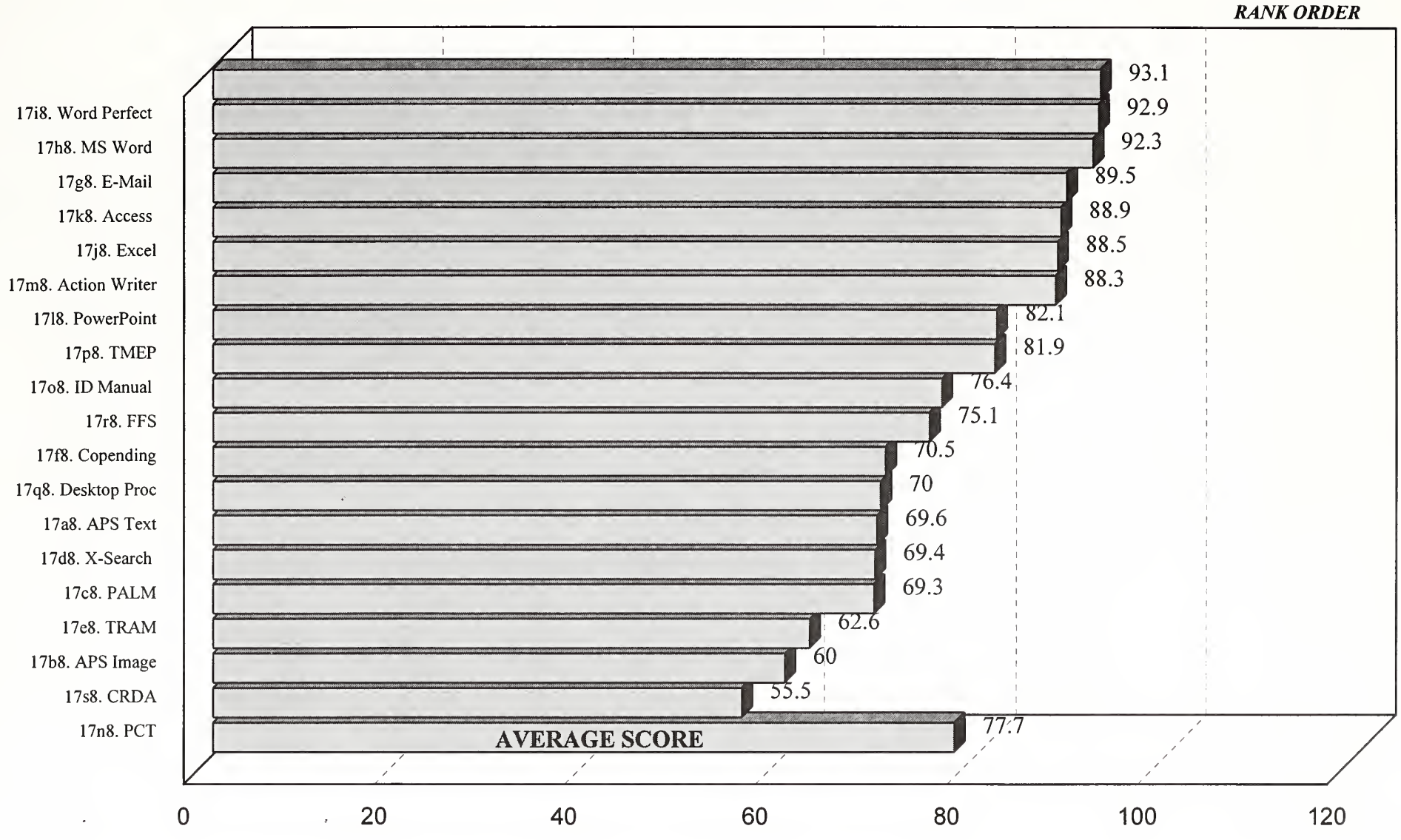
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Ability to Work With Other Applications"
All PTO Offices



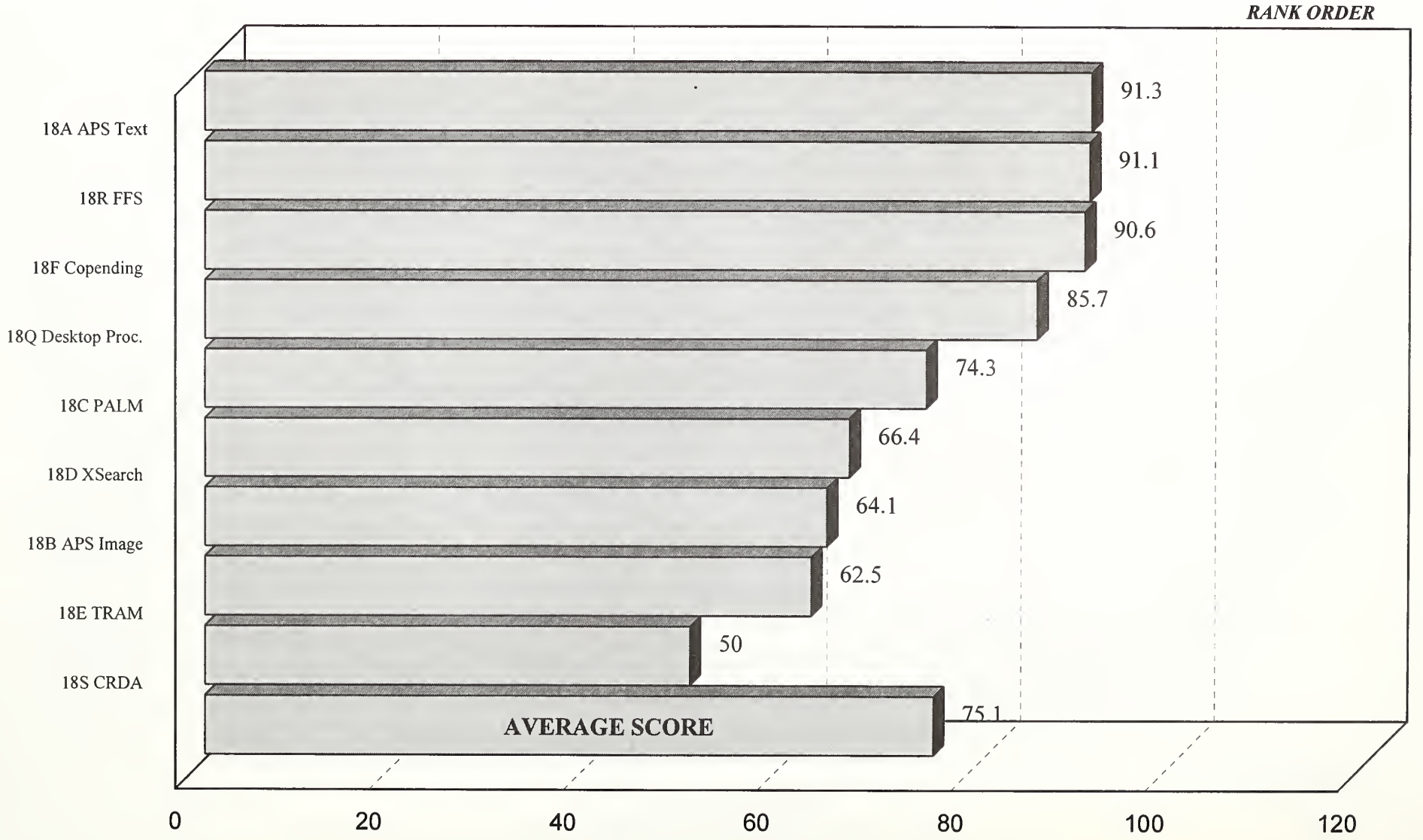
Source: USPTO Office Automation Survey, May 1996

SOFTWARE APPLICATIONS ASSESSMENT
"Extent to Which Meets Your Overall Needs"
All PTO Offices



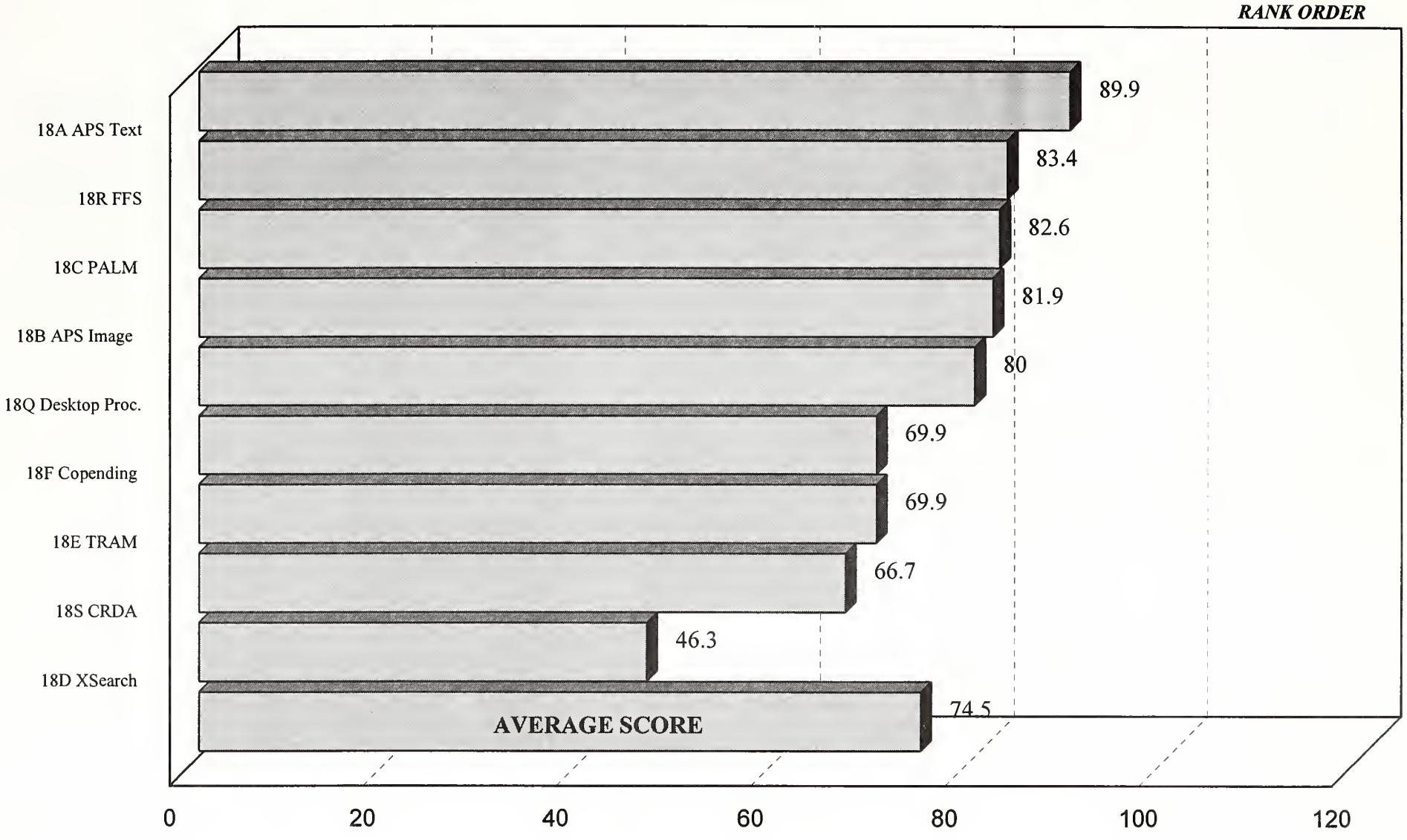
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Accessibility of Terminals"
All PTO Offices



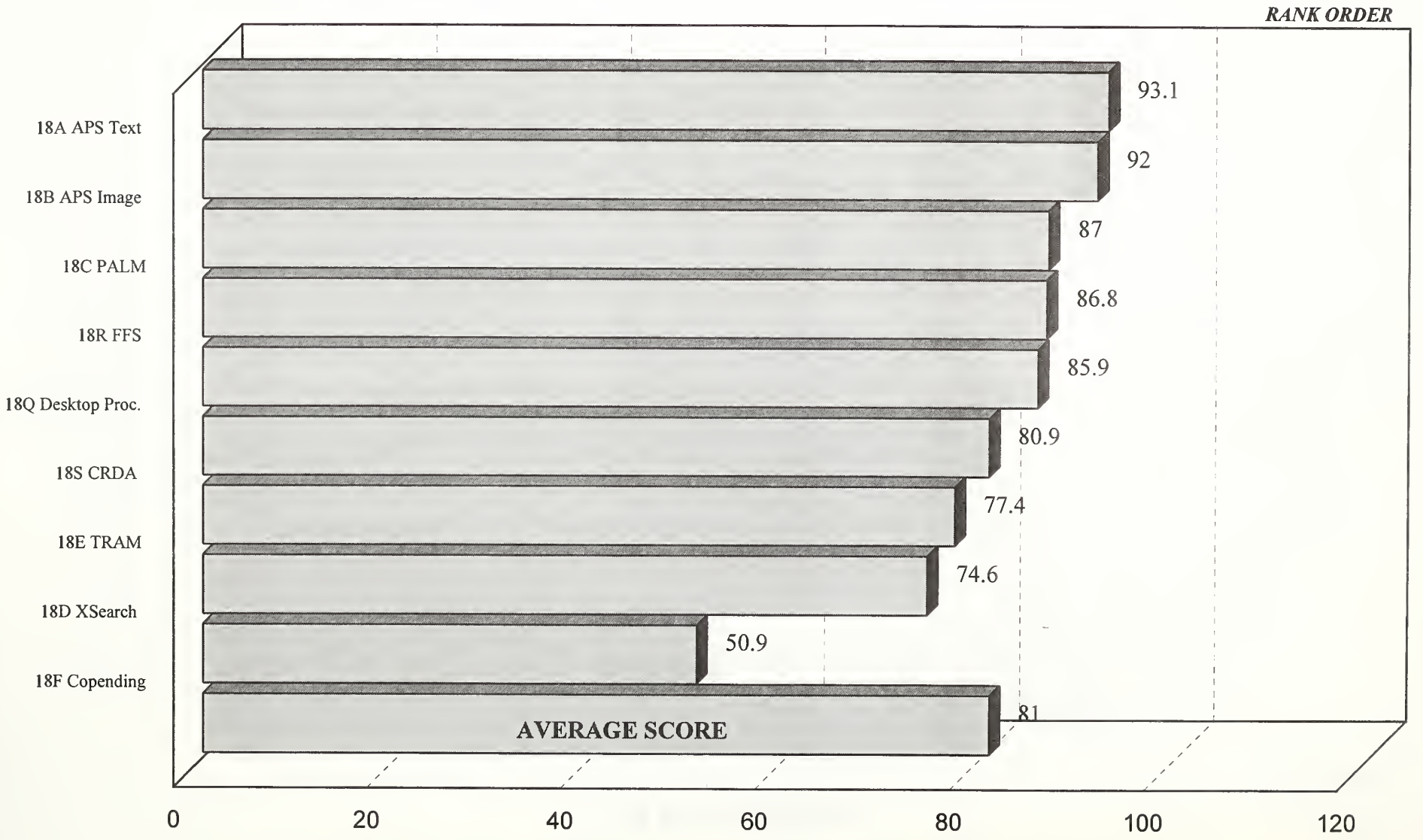
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Coding/Classification Accuracy"
All PTO Offices



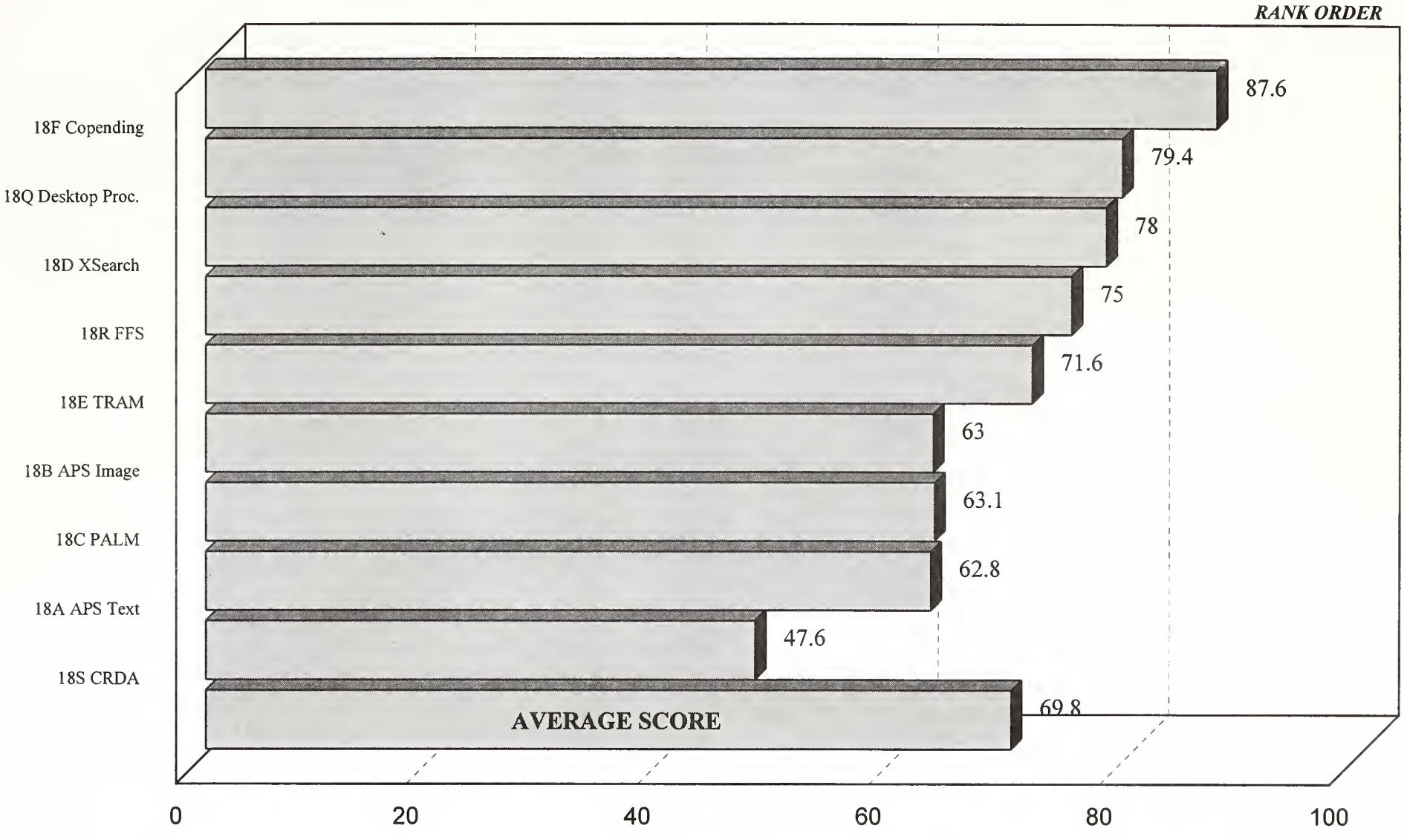
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Currency"
All PTO Offices



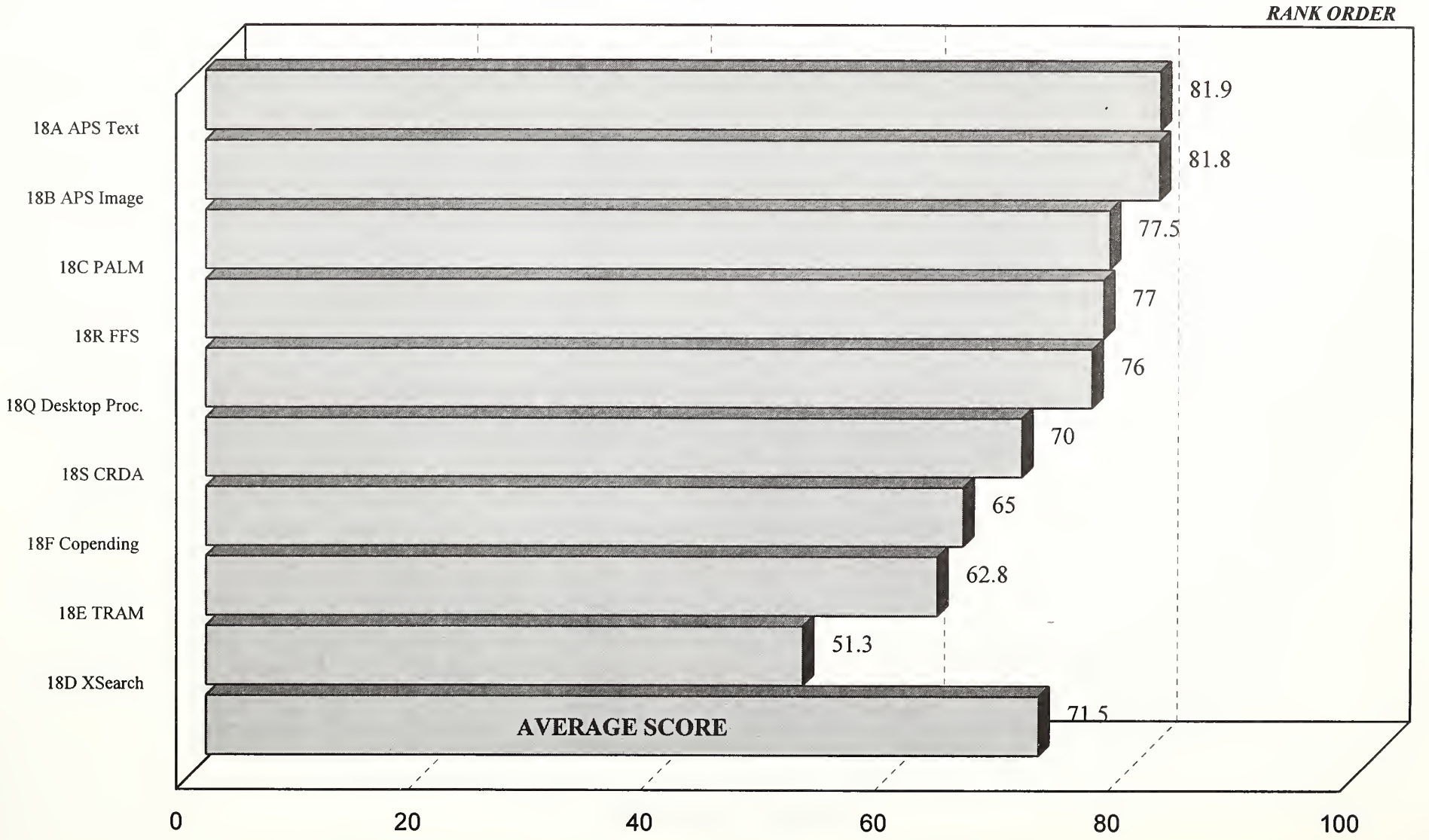
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Degree of Customization"
All PTO Offices



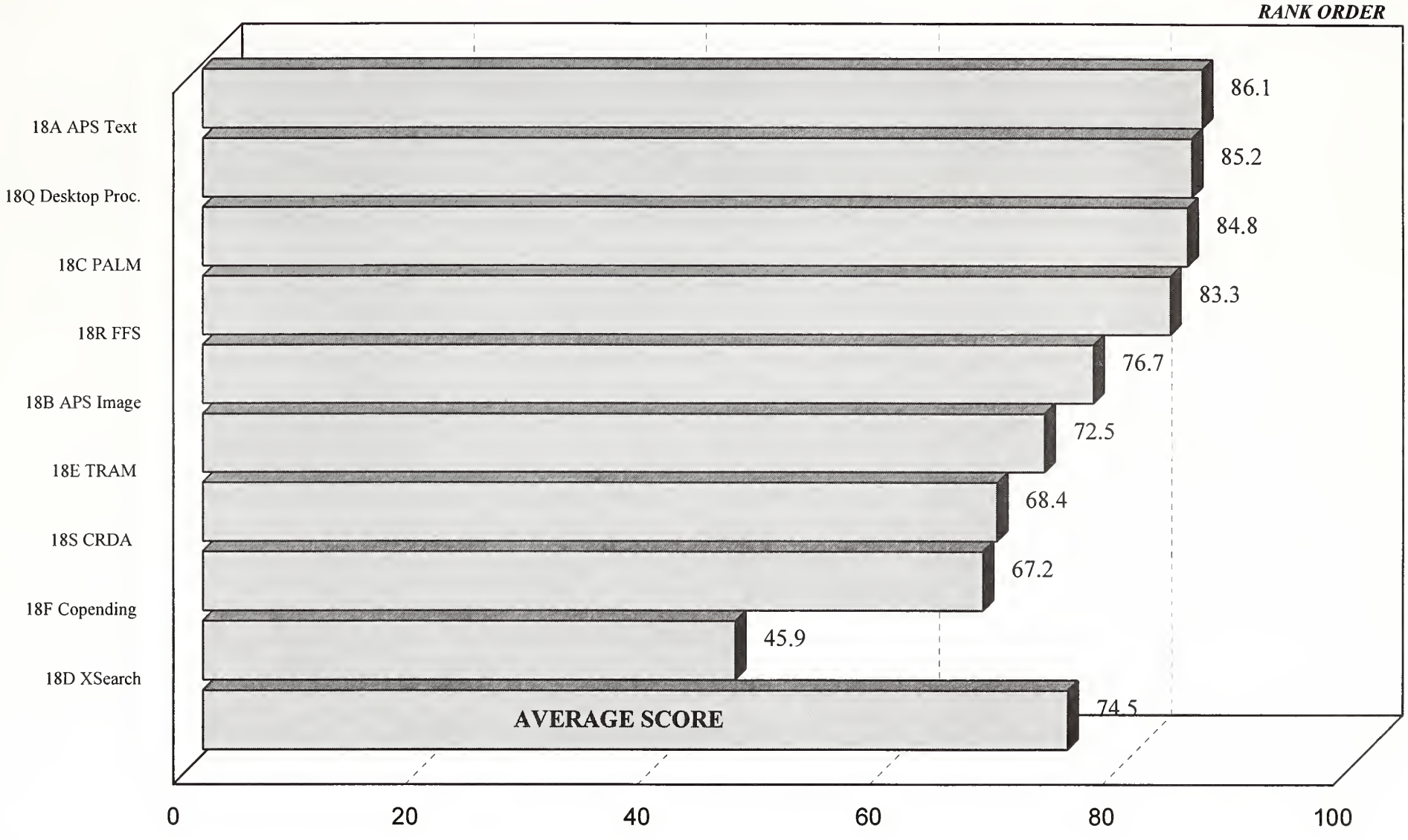
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Freedom From Data Entry Errors"
All PTO Offices



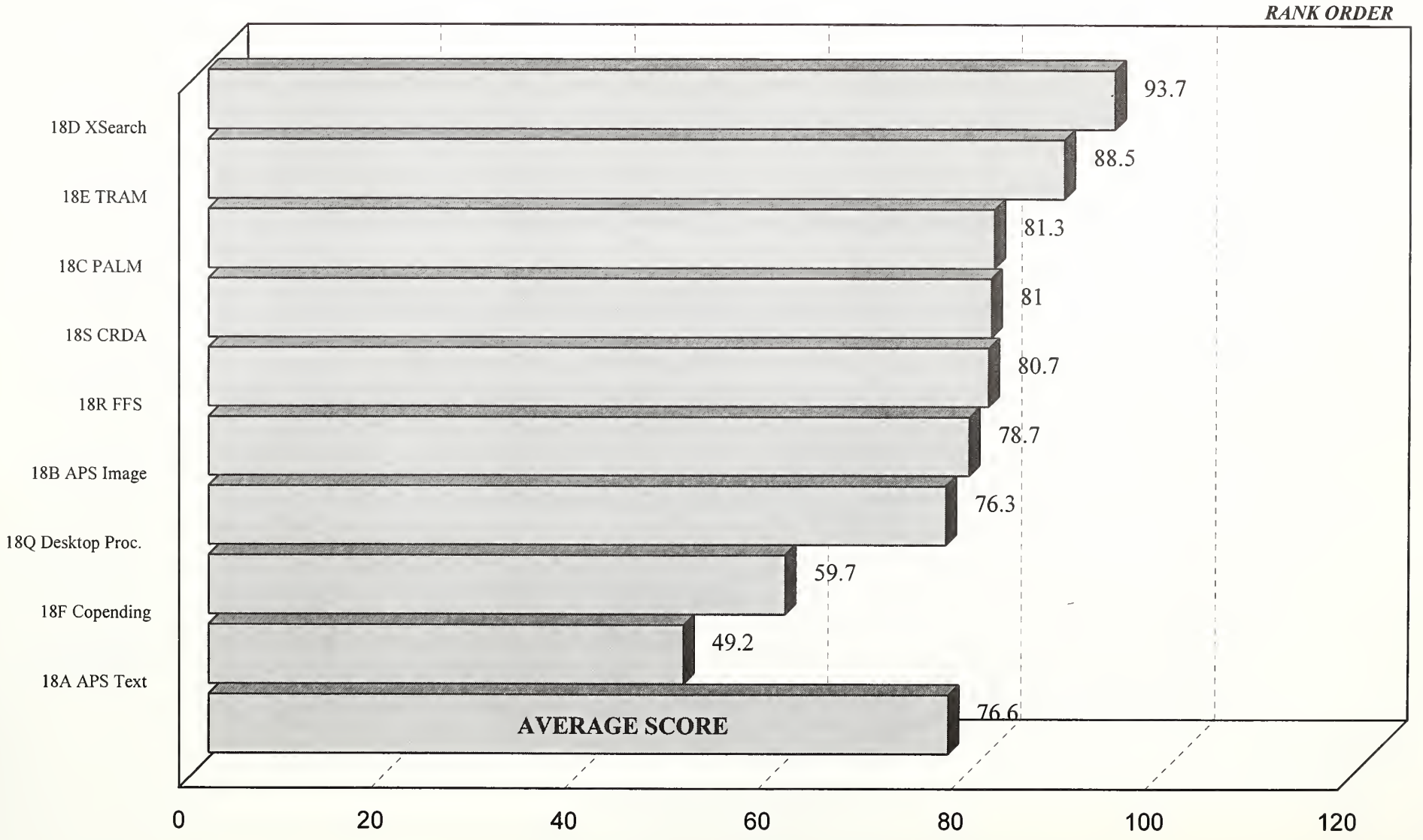
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Freedom From Missing Records"
All PTO Offices



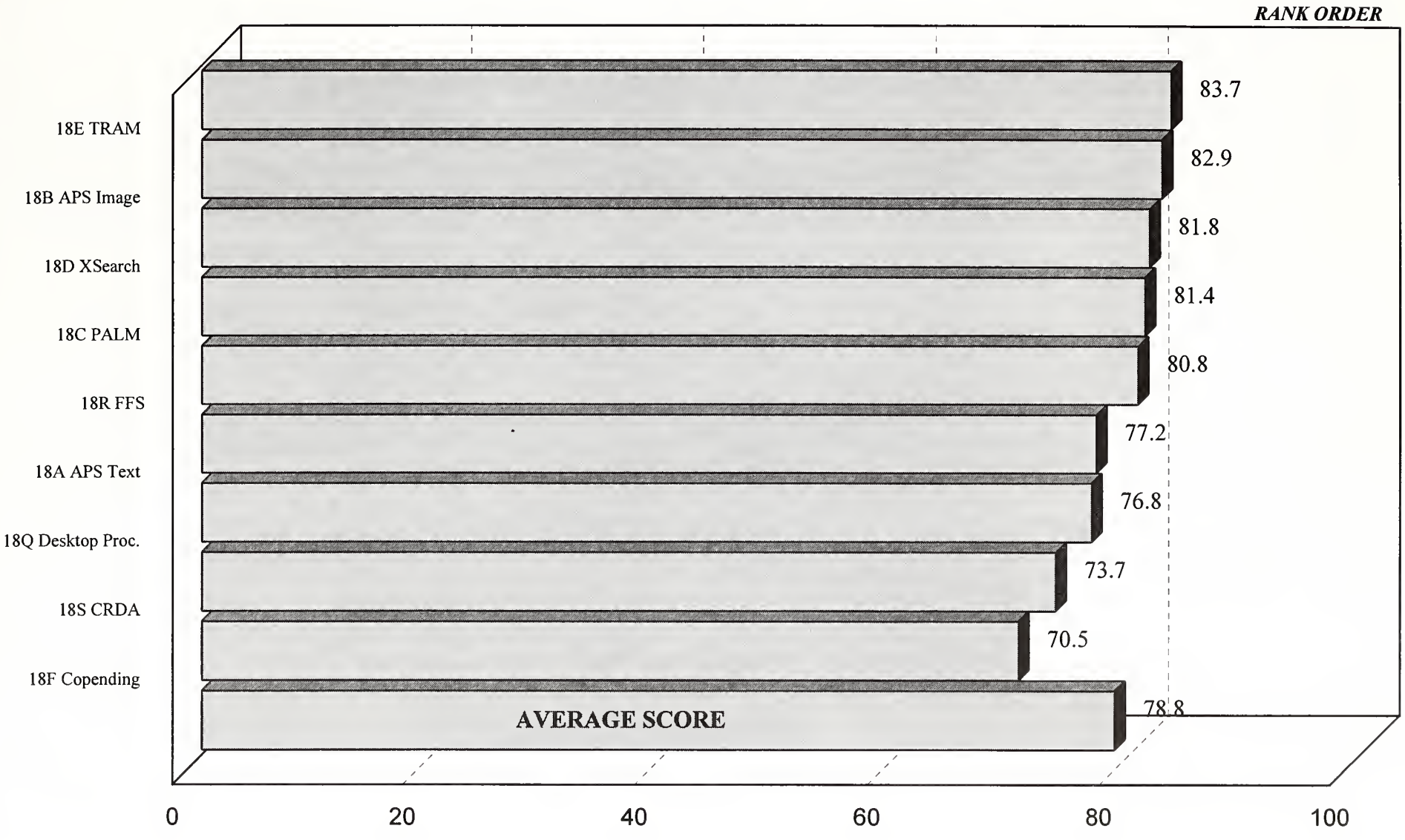
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Historicity"
All PTO Offices



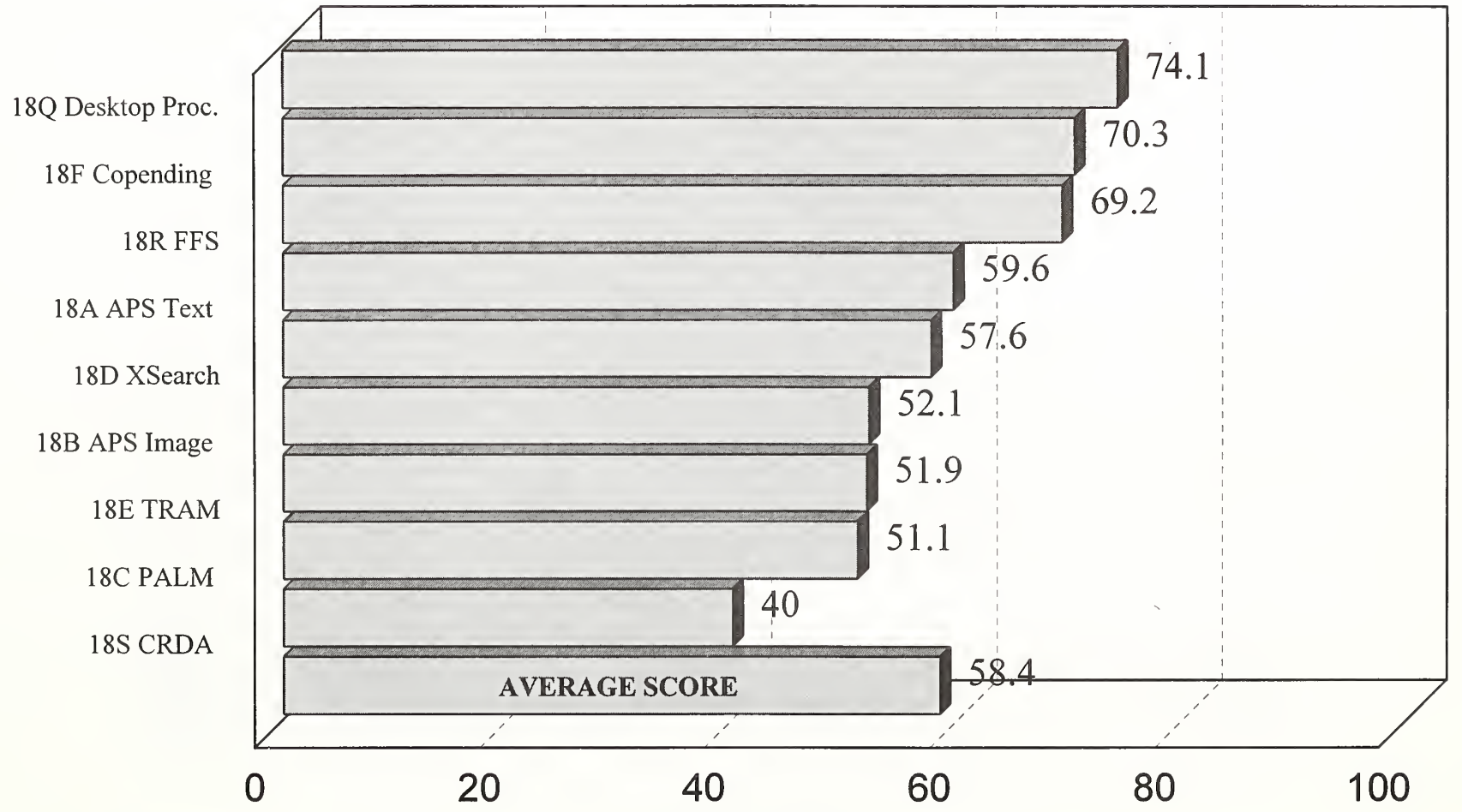
Source: USPTO Office Automation Survey, May 1996

DATABASE APPLICATIONS ASSESSMENT
"Inclusiveness"
All PTO Offices



Source: USPTO Office Automation Survey, May 1996

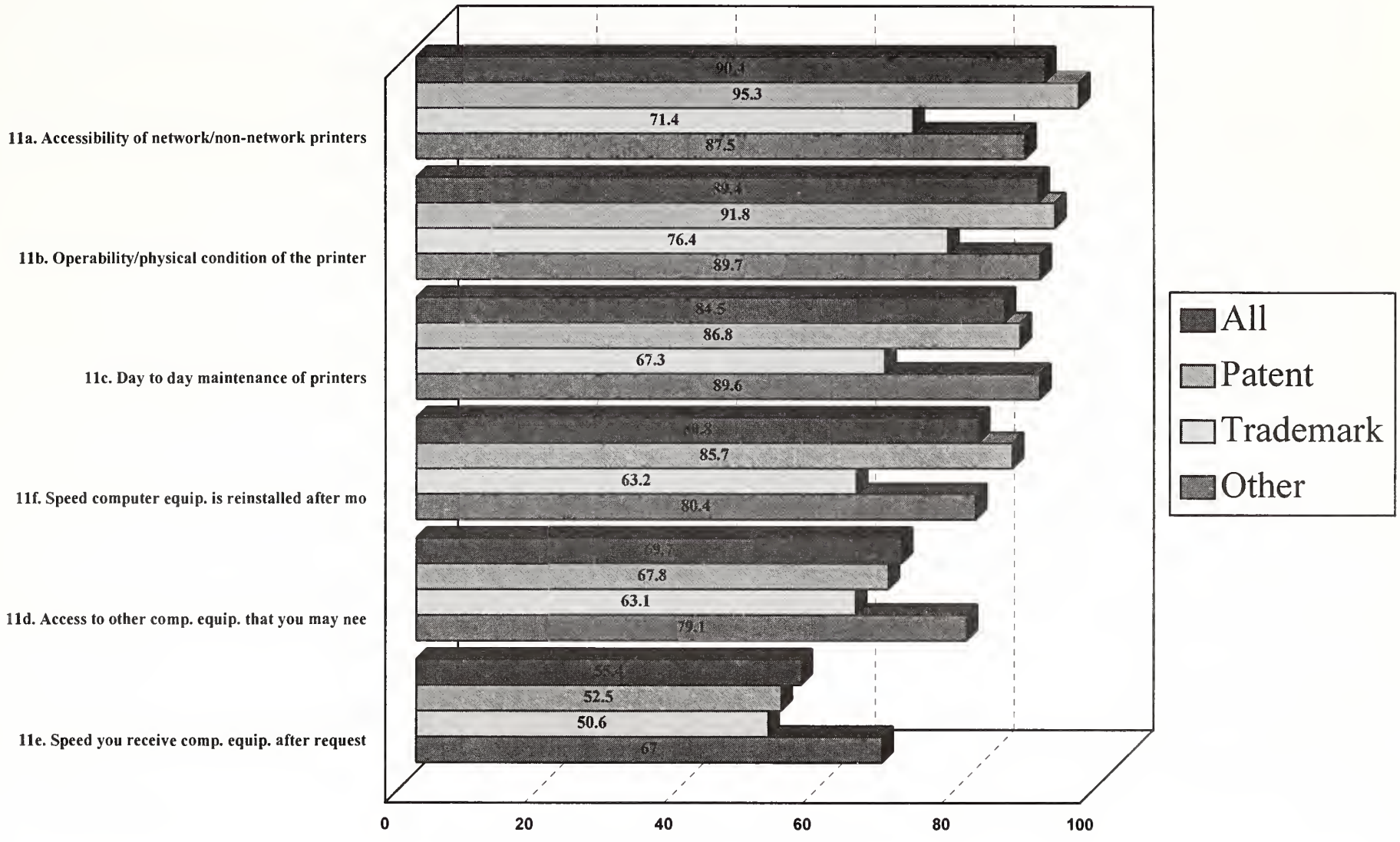
DATABASE APPLICATIONS ASSESSMENT
"Presence of Editing Tools"
All PTO Offices



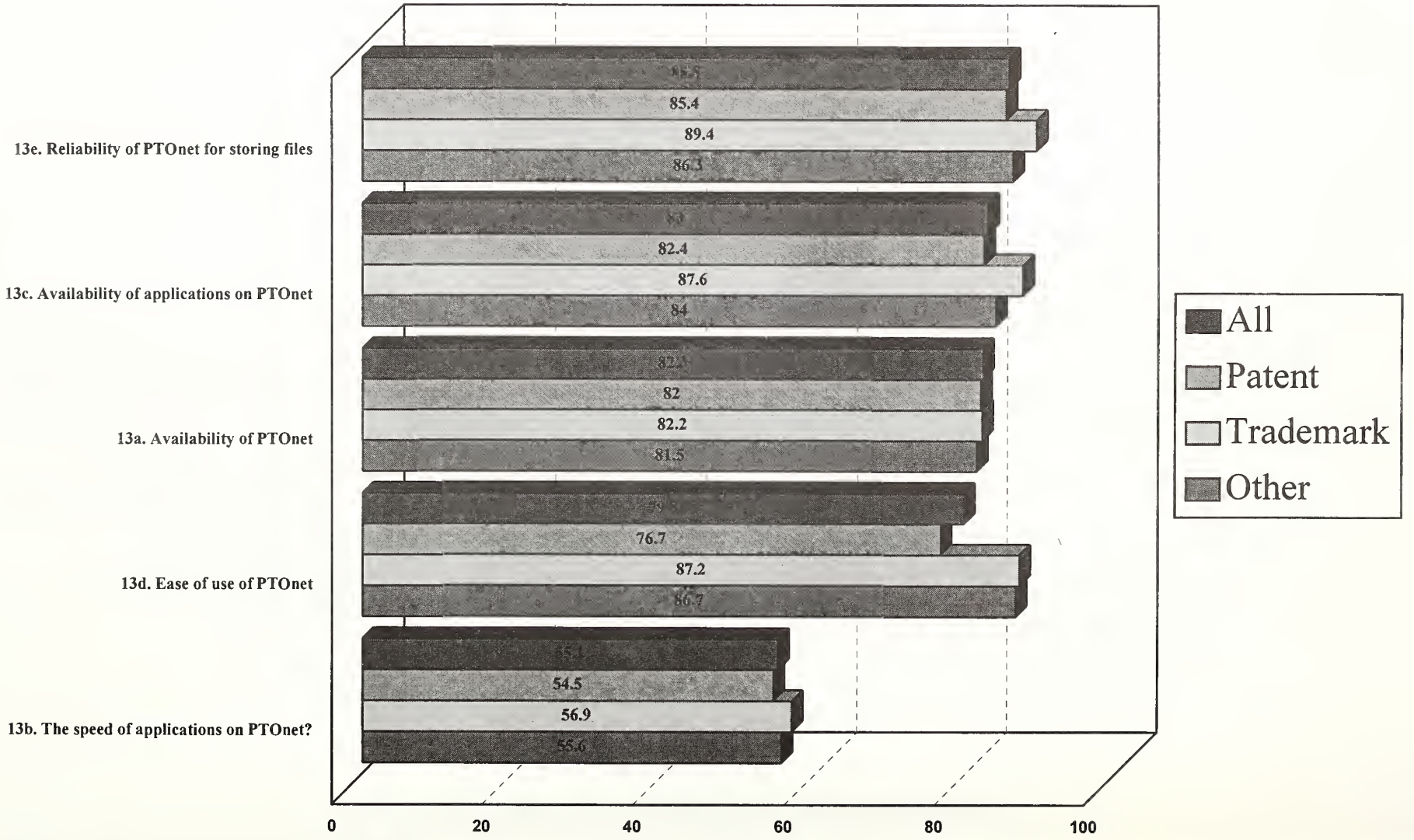
Source: USPTO Office Automation Survey, May 1996

COMPUTER EQUIPMENT ASSESSMENT

All Offices

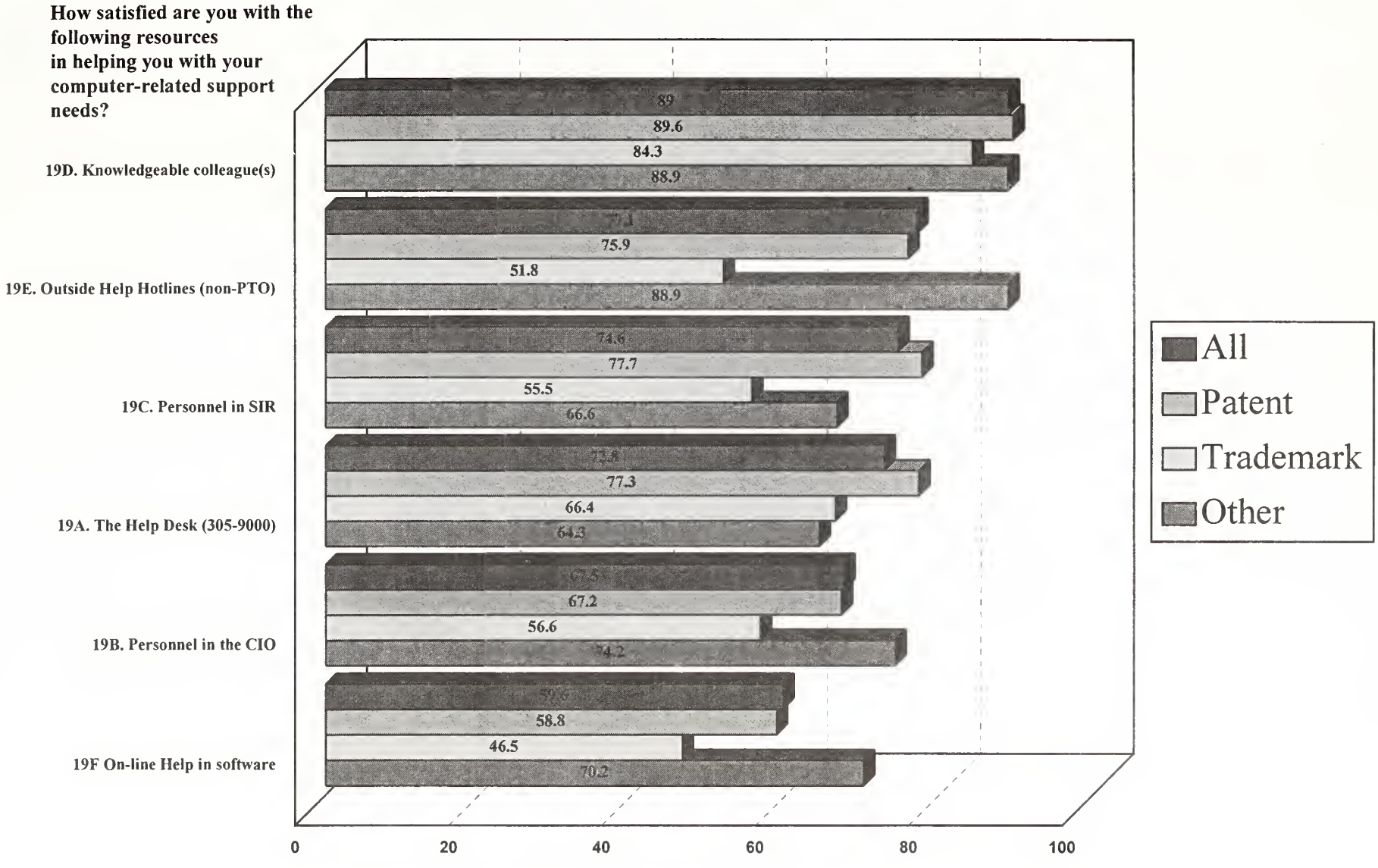


PTOnet ASSESSMENT
All Offices



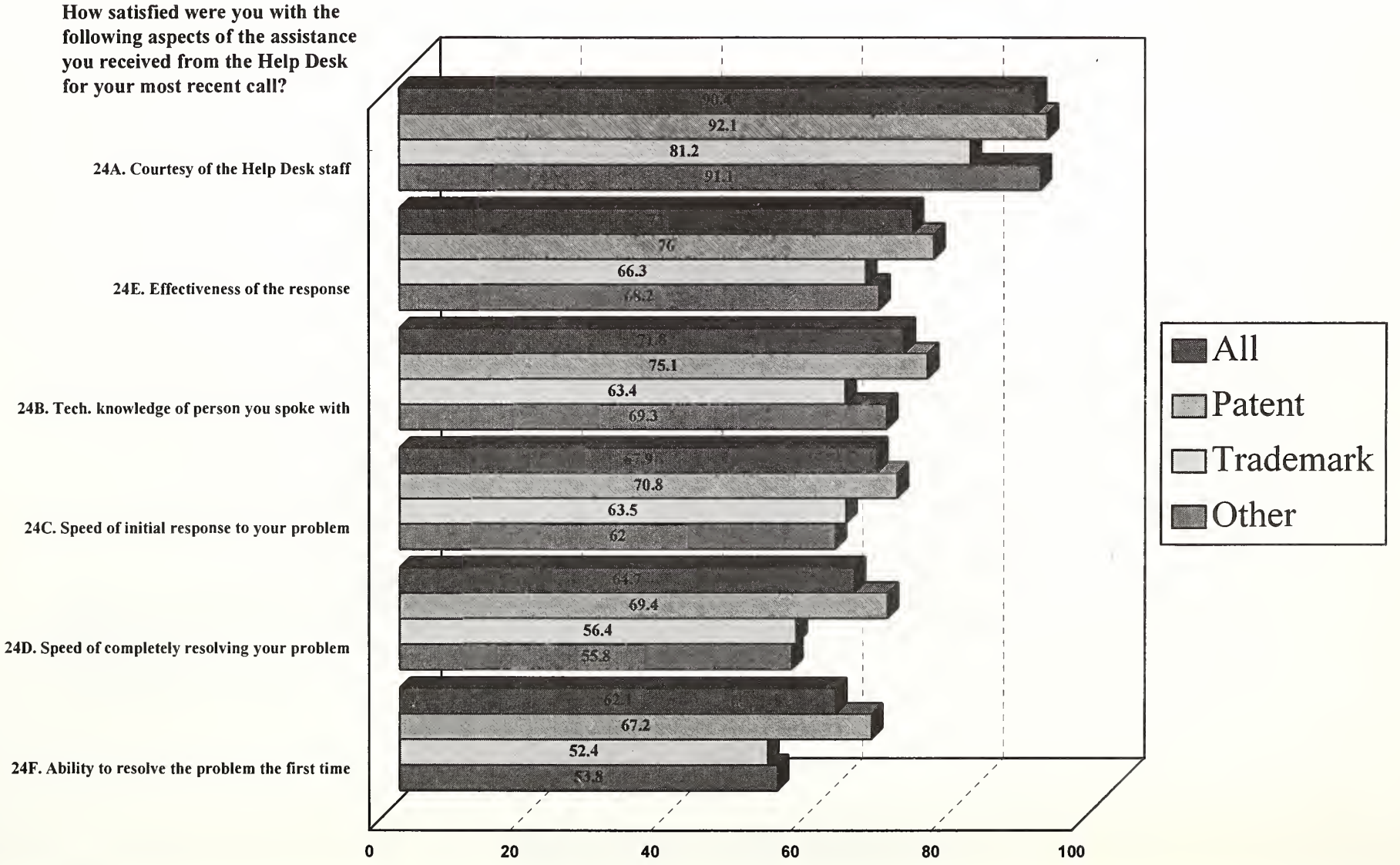
SUPPORT ASSESSMENT

All Offices



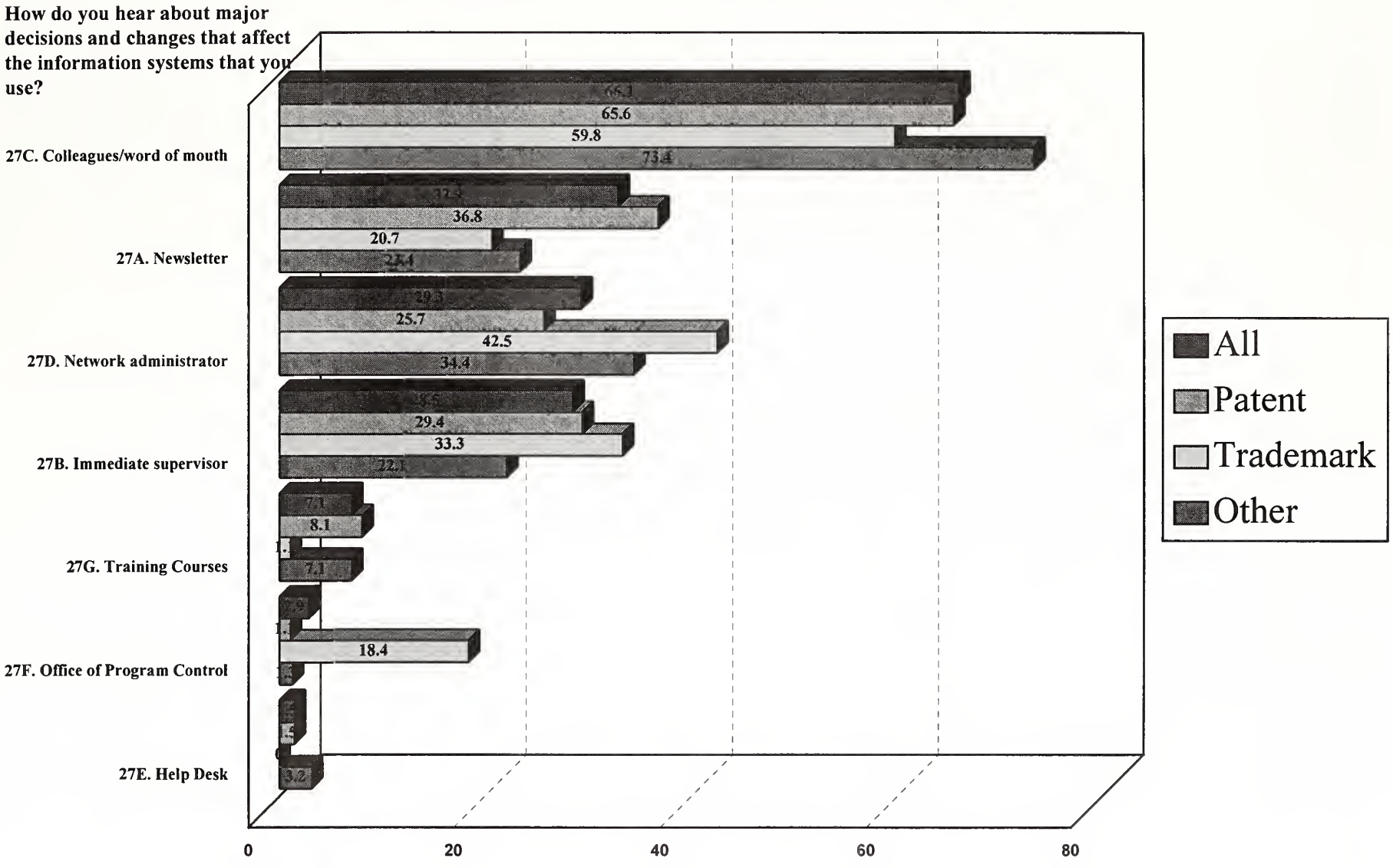
HELP DESK ASSESSMENT

All Offices



COMMUNICATION

All Offices



OVERVIEW

This survey is intended to help the USPTO assess your satisfaction with the performance of the USPTO's Office Automation Systems. Office Automation is defined as the computer-based information systems and tools that you use to do your job. As you consider your experience with the PTO's Office Automation efforts, we would like you to rate how well the systems meet your day-to-day work needs.

The survey is divided into seven parts:

- Computer Hardware Assessment
- PTOnet Assessment
- Software/Applications Assessment
- Tracking and Search Systems Assessment
- Help Desk/Support Assessment
- General Automation Policy Assessment
- Demographics
- Comments

Your open and honest evaluation is important and we will safeguard the confidentiality of your responses. Keep in mind that the objective of this study is to gather first-hand impressions from USPTO employees so that your feedback can be integrated into the USPTO's comprehensive review of its Office Automation systems.

INSTRUCTIONS

Under the **Satisfaction** heading, please place an "X" in the appropriate circle. Please use the following scale:

N/A = No answer
1 = **Not at all satisfied**
2 = **Not very satisfied**
3 = **Generally satisfied**
4 = **Very satisfied**
5 = **Completely satisfied**

Under the **Meets Your Needs** heading, please indicate how important you feel each area is to your ability to perform your job by placing an "X" in the appropriate circle. Please use the following scale:

N/A = No answer
1 = **Doesn't meet my needs at all**
2 = **Doesn't meet my needs very much**
3 = **Generally meets my needs**
4 = **Meets my needs to a great extent**
5 = **Completely meets my needs**

Some questions ask you to indicate frequency of use, estimated impact, or require other types of responses.

Please use the back page to jot down comments or explanations that you have for any question.

COMPUTER HARDWARE ASSESSMENT

1. Which of the following **BEST DESCRIBES** your current situation regarding a PC on or near your desktop, for your own personal use? (Check only one response)

   - ☐ I have no PC on or near my desktop, and I don't use a PC at all. **(Skip to Question 14)**
   - ☐ I have no PC on or near my desktop, but I share the use of a PC or PCs with others
   - ☐ I have one PC on or near my desktop, and that PC is supplied by PTO
   - ☐ I have one PC on or near my desktop, and that PC is owned by me
   - ☐ I have two or more PCs on or near my desktop, and they are both supplied by PTO
   - ☐ I have two or more PCs on or near my desktop, and one of them is owned by me

If you use more than one PTO-supplied PC, consider only the one you use most, your "primary" PC, for questions 2 through 8.

2. What kind of PC is your primary PC? (Check only one)

   - ☐ 286
   - ☐ 386
   - ☐ 486
   - ☐ Pentium
   - ☐ Macintosh
   - ☐ Not sure

3. Does your primary PC have a modem? (Check as many as apply)

   - ☐ Yes, an internal modem
   - ☐ Yes, an external modem
   - ☐ No, no type of modem
   - ☐ Not sure

4. Approximately how much time do you spend using your PC during an average day?

   - ☐ I don't use my PC at all during an average day
   - ☐ Less than 1 hour
   - ☐ 1 hour - less than 2 hours
   - ☐ 2 hours - less than 3 hours
   - ☐ 3 hours - less than 4 hours
   - ☐ 4 hours - less than 5 hours
   - ☐ 5 hours or more

5. How would you rate the adequacy of your primary PC (hardware only) for the work that you need to do?

   - ☐ Very inadequate
   - ☐ Generally inadequate
   - ☐ Generally adequate
   - ☐ Very adequate

   → If inadequate, please explain:

   _____

   _____

   _____

COMPUTER HARDWARE ASSESSMENT CONTINUED

6. How satisfied are you with the overall **operability** and **physical condition** of your primary PC?
   - Not satisfied at all
   - Not very satisfied
   - Generally satisfied
   - Very satisfied
   - Completely satisfied

7. Is your primary PC currently linked up to a network printer(s) via PTOnet?
   - Yes, linked to network printer(s)
   - No, not linked to any network printer(s)
   - Not sure

8. Do you have a **non-network** printer connected to your PC for your own personal use?
   - No, I do not have a **non-network** printer connected to my PC for my personal use **(Skip to Question 11)**
   - Yes, I have a **non-network** dot matrix printer
   - Yes, I have a **non-network** inkjet printer
   - Yes, I have a **non-network** laser printer
   - Yes, I have a **non-network** printer, but I do not know the type
   - Not sure

9. How would you describe your level of usage of your **non-network** printer(s) during the past three months?
   - Zero
   - Very light
   - Light
   - Medium
   - Heavy
   - Very heavy

10. How would you rate the overall adequacy of your **non-network** printer?
    - Very inadequate
    - Generally inadequate
    - Generally adequate
    - Very adequate

11. How satisfied are you with...

	Not sure/ Doesn't apply	Not at all satisfied	Not very satisfied	Generally satisfied	Very satisfied	Completely satisfied
a. The accessibility of the printer(s) that you need for your work (network and non-network)?						
b. The operability and physical condition of the printers that you need for your work (network and non-network)?						

COMPUTER HARDWARE ASSESSMENT CONTINUED

	Not sure/ Doesn't apply	Not at all satisfied	Not very satisfied	Generally satisfied	Very satisfied	Completely satisfied
c. The day -to-day maintenance of the printers that you need for your work (network and non-network)?	○	○	○	○	○	○
d. Your access to other computer equipment that you may need for your work?	○	○	○	○	○	○
e. The speed with which you receive computer equipment you have ordered or requested.	○	○	○	○	○	○
f. The speed with which your computer equipment is reinstalled after a move?	○	○	○	○	○	○

PTOnet ASSESSMENT

12. Is your primary PC hooked up to the PTOnet?

○ Yes
○ No → **(Skip to Question 15)**
○ Not sure

13. How satisfied are you with each of the following aspects of PTOnet **over the past three months?**

	Not sure/ Doesn't apply	Not at all satisfied	Not very satisfied	Generally satisfied	Very satisfied	Completely satisfied
a. The **availability** of PTOnet (freedom from outages and downtime)?	○	○	○	○	○	○
b. The **speed** of applications on PTOnet (response time for your commands, entries, keystrokes)?	○	○	○	○	○	○
c. The availability of applications you need on PTOnet?	○	○	○	○	○	○
d. The ease of use of PTOnet (logging on/off, passwords, etc.)?	○	○	○	○	○	○
e. The reliability of PTOnet for storing files (are saved files reliably relocated when needed)?	○	○	○	○	○	○

14. Considering all of the work that you do using computer systems, what percentage of that work is accomplished from your **primary desktop PC** versus that which is accomplished using a terminal or a PC located somewhere else?

○ 0% ○ 20% ○ 40% ○ 60% ○ 80% ○ 100%

SOFTWARE/APPLICATIONS ASSESSMENT

15. In this section, we'd like to learn about the information systems that you use. **PLEASE PLACE AN "X" or a CHECK MARK** in the appropriate column to indicate your frequency of use of the various systems listed, how long you have been using them and your level of expertise. If you have not used a particular system in the past three months, mark the "Not at all" column under the first question and leave the rest of that row blank.

		How frequently have you used this information system or tool over the past 3 months for your work?					How long have you been using this system, including earlier versions?						How would you describe your level of expertise on this system?				
		Not at all	Once every few weeks or so	Several times per month	Several times per week	Several times per day	Less than 1 year	1 year to less than 2	2 years to less than 3	3 years to less than 4	4 years to less than 5	More than 5 years	Complete beginner	Novice - still much to learn	Intermediate user - fairly knowledgeable	Advanced user - very knowledgeable	Expert - extremely knowledgeable
PATENT SYSTEMS	a. APS Text (Messenger)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	b. APS Image (CSIR)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	c. PALM	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
TRADEMARK SYSTEMS	d. X-Search	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	e. TRAM	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	f. Co-pending	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
PTOnet SOFTWARE	g. E-Mail	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	h. MS Word	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	i. WordPerfect	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	j. Excel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	k. Access	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	l. Powerpoint	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
EXAMINER TOOLS	m. Action Writer	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	n. Patent Coop. Treaty (PCT)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	o. ID Manual	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	p. Trademark Manual (TMEP)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ADMIN. TOOLS	q. Desktop procurement	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	r. Fed. Financial System (FFS)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	s. CRDA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

SOFTWARE/APPLICATIONS ASSESSMENT CONTINUED

16. Please respond to the following questions about **TRAINING** by **PLACING AN "X" or a CHECK MARK** in the appropriate columns. If you did not receive training on a system, mark the "No" column under the first question and leave the rest of that row blank.

		Have you received formal training?		Where did this training occur? (You can mark more than one)					What skill levels did the training cover? (You can mark more than one)			When did initial training start relative to when you started using the system for work?		
		Yes	No	PTO Univ.	Patent Acad.	WED	Other PTO training	Outside school or center	Initial/Beginner's	Advanced/ Refresher	Not sure	Before I started using it	Same time as I started using it	After I started using it
PATENT SYSTEMS	a. APS Text (Messenger)													
	b. APS Image (CSIR)													
	c. PALM													
TRADEMARK SYSTEMS	d. X-Search													
	e. TRAM													
	f. Co-pending													
PTOnet SOFTWARE	g. E-Mail													
	h. MS Word													
	i. WordPerfect													
	j. Excel													
	k. Access													
	l. Powerpoint													
EXAMINER TOOLS	m. Action Writer													
	n. Patent Coop. Treaty (PTC)													
	o. ID Manual													
	p. Trademark Manual (TMEP)													
ADMIN. TOOLS	q. Desktop procurement													
	r. Fed. Financial System (FFS)													
	s. CRDA													

SOFTWARE/APPLICATIONS ASSESSMENT CONTINUED

17. In the circle **PLEASE WRITE THE NUMBER** that indicates your level of satisfaction with the systems listed below using the following scale. For systems you do not use, please place a check mark or an "X" in the "Don't use" circle.

0=N/A
1=Not at all satisfied
2=Not very satisfied
3=Generally satisfied
4=Very satisfied
5=Completely satisfied

		Don't use	Availability for your use	Speed of response to your commands	Overall ease of use (user freindliness)	Reliability (freedom from down-time, problematic operation)	The availability of training	The overall quality of training	Ability to work with or exchange data with other applications	Extent to which the system meets your overall work needs
PATENT SYSTEMS	a. APS Text (Messenger)									
	b. APS Image (CSIR)									
	c. PALM									
TRADEMARK SYSTEMS	d. X-Search									
	e. TRAM									
	f. Co-pending									
PTOnet SOFTWARE	g. E-Mail									
	h. MS Word									
	i. WordPerfect									
	j. Excel									
	k. Access									
	l. Powerpoint									
EXAMINER TOOLS	m. Action Writer									
	n. Patent Cooperation Treaty (PCT)									
	o. ID Manual									
	p. Trademark Manual (TMEP)									
ADMIN. TOOLS	q. Desktop procurement									
	r. Federal Financial System (FFS)									
	s. CRDA									

TRACKING AND SEARCH SYSTEMS ASSESSMENT

18. In the circle **PLEASE WRITE THE NUMBER** that indicates your level of satisfaction with the Tracking and Search systems listed below using the scale below: For systems you do not use, please place a check mark or an "X" in the "Don't use" circle.

0=N/A
1=Not at all satisfied
2=Not very satisfied
3=Generally satisfied
4=Very satisfied
5=Completely satisfied

		Don't use	The accessibility of terminals from which you use the system	Presence of tools (spell check, error messages), that ensure accurate entries & operations	The degree to which the system is customized to your work	The extent to which database records go back far enough in time (historicity)	The extent to which information in the database is sufficiently up-to-date (currency)	The database's inclusion of all classes of records that are relevant to you needs (inclusiveness)	The database's freedom from data entry errors (misspellings, typos, etc.)	The database's freedom from inaccurately classified or coded records and/or images	Database's freedom from missing records or missing elements (images, text) in a record
PATENT SYSTEMS	a. APS Text (Messenger)										
	b. APS Image (CSIR)										
	c. PALM										
TRADEMARK SYSTEMS	d. X-Search										
	e. TRAM										
	f. Co-pending										
ADMIN. TOOLS	q. Desktop procurement										
	r. Federal Financial System (FFS)										
	s. CRDA										

HELP DESK/SUPPORT ASSESSMENT

19. How satisfied are you with the following resources in helping you with your computer related support needs?

	Not sure/ Doesn't apply	Not at all satisfied	Not very satisfied	Generally satisfied	Very satisfied	Completely satisfied
a. The Help Desk (305-9000)						
b. Personnel in the Office of the Chief Information Officer (CIO), formerly Information Systems (IS)						
c. Personnel in Search and Information Resources (SIR)						
d. Knowledgeable colleague(s)						
e. Outside Help Hotline(s) (**non-PTO**)						
f. On-line help contained in software applications						

20. Within the **past three months**, have you had occasion to call the PTO Help Desk (305-9000), either directly or through a designated coordinator or other intermediary? (Check all that apply)

- ○ No **(Skip to Question 26)**
- ○ Yes, I have called the Help Desk at least once
- ○ Yes, I have reported a problem to a designated coordinator or another person who has called the Help Desk at least once

21. As best as you can recall, how many separate "incidents" or problems have you called in or reported during the **past three months**? (Count multiple calls for the same problem only once.)

- ○ One incident
- ○ 2 - 4 separate incidents
- ○ 5 or more separate incidents

22. Considering the **most recent incident** that is no longer pending (i.e. has been resolved, or which you are no longer addressing via the Help Desk), which of the following statements most closely describes the general nature of that incident as it appeared to you at the time?

- ○ An equipment problem (PC, terminal, keyboard, monitor, printer, etc.)
- ○ A software problem (a problem with the working of a particular program or application)
- ○ A network problem (a problem with PTOnet and/or your connection with PTOnet)
- ○ A combination of the above
- ○ None of the above
- ○ Not sure

HELP DESK/SUPPORT ASSESSMENT CONTINUED

23. Again, considering that same incident, how many times did you call the Help Desk in regard to that specific problem?
    - One time
    - 2 - 4 times
    - 5 or more times

24. Considering the **most recent incident** that is no longer pending, how satisfied were you with the assistance you received from the Help Desk and any associated vendors in the following respects:

	Not sure/ Doesn't apply	Not at all satisfied	Not very satisfied	Generally satisfied	Very satisfied	Completely satisfied
a. The courtesy of the person you spoke with						
b. The technical knowledge of the person you spoke with						
c. The speed or promptness of the initial response to the problem						
d. The speed or promptness in completely resolving the problem						
e. The effectiveness of the response to the problem						
f. The ability of the Help Desk to resolve the problem the first time, without the need to repeat calls or visits						

25. Considering all of the experiences that you have had with the Help Desk **in the last three months**, how satisfied are you that the Help Desk meets your computer-related support needs?
    - Not sure/Doesn't apply
    - Not satisfied at all
    - Not very satisfied
    - Generally satisfied
    - Very satisfied
    - Completely satisfied

GENERAL AUTOMATION POLICY ASSESSMENT

26. How satisfied are you with the information you receive concerning major decisions and changes that affect the information systems and software tools that you use?

- Not sure/Doesn't apply
- Not satisfied at all
- Not very satisfied
- Generally satisfied
- Very satisfied
- Completely satisfied

27. How do you hear about major decisions and changes that affect the information systems and software tools that you use? **(Check all that apply)**

- Newsletter
- Immediate supervisor
- Other colleagues/word of mouth
- Network administrator
- Help Desk
- Office of Program Control
- Training courses
- Other (specify) _____

28. How satisfied are you with the voice that you have in the decisions and changes that affect the information systems and software tools that you use?

- Not sure/Doesn't apply
- Not satisfied at all
- Not very satisfied
- Generally satisfied
- Very satisfied
- Completely satisfied

GENERAL AUTOMATION POLICY ASSESSMENT CONTINUED

29. On the whole, would you say that office automation has had a positive or negative impact on your ability to do your job?

    Positive

    Negative

30. Which of the following changes or enhancements would have the greatest positive impact on your day-to-day productivity?

	Not sure/ Doesn't apply	Little impact	Some impact	High impact	Major impact
a. Placing PALM/TRAM at your desktop via PTOnet					
b. Placing X-Search at your desktop via PTOnet					
c. Placing Automated Patent System (APS) Image at your desktop via PTOnet					
d. The upgrade of applications that are currently on PTOnet					

(Specify upgrades that you feel will have the greatest positive impact.) _____

_____

_____

e. The addition of new applications on PTOnet

(Specify new applications that you feel will have the greatest positive impact.) _____

_____

_____

f. Increasing the speed of operation of PTOnet

g. Improving the quality of training courses

h. Adding a greater number of advanced training courses

GENERAL AUTOMATION POLICY ASSESSMENT CONTINUED

	Not sure/ Doesn't apply	Little impact	Some impact	High impact	Major impact
i. Encouraging training by increasing the amount of training time that you can claim on your time sheets					
j. Having a computer "resource person/trouble-shooter/trainer" close at hand in each unit					
k. Access to telephone Help Hotlines of the computer application manufacturers such as Microsoft					
l. Providing access to PTO systems from your home PC					
m. Providing access to PTO e-mail from your home PC					
n. Providing one log-on ID for various applications and software that you use					

31. Overall, what would you say are your three biggest problems concerning the computer systems that affect you?

#1 _____

_____

_____

#2 _____

_____

_____

#3 _____

_____

_____

DEMOGRAPHICS

The following information is needed to help us with the statistical analysis of the results. All of your responses are confidential and will not be associated with you individually.

32. Which category below most closely characterizes the nature of the work that you do?

- Managerial (Specify below)
  - Supervisory or managing examiner
  - Other manager
- Administrative
- Professional (Specify below)
  - Examiner or managing attorney
  - Other professional
- Technical
- Clerical
- Other (specify) _____

33. How long have you worked with PTO?

- Less than 1 year
- 1 year to less than 3
- 3 years to less than 5
- 5 years to less than 10
- 10 years or more

34. How long have you been a federal employee?

- Less than 1 year
- 1 year to less than 3
- 3 years to less than 5
- 5 years to less than 10
- 10 years or more
- Not a federal employee (contractor, etc.)

35. What is your pay grade?

- Grade 5 to 8
- Grade 9 to 12
- Grade 13 to 14
- Grade 15 and over (or SES)
- Ungraded
- Other (contractor, etc.)

DEMOGRAPHICS CONTINUED

36. Do you usually work: **(Check all that apply)**
    - ◌ Regular business hours
    - ◌ Early weekday mornings
    - ◌ Weekday evenings
    - ◌ Saturdays and Sundays

37. What is the highest level of education you have completed?
    - ◌ Graduated from high school
    - ◌ Some college or a technical degree or certificate
    - ◌ Graduated from college (B.A., B.S., or other bachelor's degree)
    - ◌ Law degree (JD, LLB)
    - ◌ Other graduate or professional degree (M.A., M.S., MBA, Ph.D., etc.)
    - ◌ Other (specify) _____

38. What is your age?
    - ◌ Less than 20 years
    - ◌ 20 - 29 years
    - ◌ 30 - 39 years
    - ◌ 40 - 49 years
    - ◌ 50 - 59 years
    - ◌ 60 -64 years
    - ◌ 65 years or older

39. How would you characterize your overall level of computer expertise?
    - ◌ Complete beginner
    - ◌ Novice - still much to learn
    - ◌ Intermediate user - fairly knowledgeable
    - ◌ Advanced user - very knowledgeable
    - ◌ Expert user - extremely knowledgeable

40. Have you personally participated in any Business Process Re-engineering (BPR) meetings or efforts in the past three years?
    - ◌ Yes
    - ◌ No
    - ◌ Not sure

DEMOGRAPHICS CONTINUED

41. Please place an "X" in the circle beside the office to which you are assigned. (Please check only one office)
(NOTE: The organizational list extends over the next 3 pages.)

PATENT OFFICES

- **OFFICE OF THE ASSISTANT COMMISSIONER FOR PATENTS**
  - Office of the Deputy Assistant Commissioner for Patents
    - Patent Examining Groups
      - Group 1100
      - Group 1200
      - Group 1300
      - Group 1500
      - Group 1800
      - Group 2100
      - Group 2200
      - Group 2300
      - Group 2400
      - Group 2500
      - Group 2600
      - Group 2900
      - Group 3100
      - Group 3200
      - Group 3300
      - Group 3400
      - Group 3500
  - Office of the Deputy Assistant Commissioner for Patent Policy and Projects
    - Office of Patent Policy Dissemination
      - Patent Academy
      - Manual of Patent Examining Procedure
      - Technical Support Academy
    - Search and Information Resources Administration
      - Office of Search Systems
      - Scientific and Technical Information Center
      - Director of Classification Operations
        - Classification Groups
        - Office of Classification Support
    - Office of Patent Program Control
    - Office of Patent Application Management
    - Patent Legal Administrator
      - Office of Petitions
      - Special Program Law Office
  - Deputy Assistant Commissioner for Patent Process Services
    - Office of Initial Patent Examination
    - Office of Patent Publication and Dissemination
    - PCT Operations
    - PCT Legal Affairs

Continued on next page.

DEMOGRAPHICS CONTINUED

TRADEMARK OFFICES

- **OFFICE OF THE ASSISTANT COMMISSIONER FOR TRADEMARK (DEPUTY)**
  - Trademark Assistance Center
  - Office of the Director, Trademark Examining Law Offices
    - Law Office 101
    - Law Office 102
    - Law Office 103
    - Law Office 104
    - Law Office 105
    - Law Office 106
    - Law Office 107
    - Law Office 108
    - Law Office 109
  - Office of Trademark Services
    - Office of the Director
    - Pre-Examination
    - Publication and Issue
    - Intent to Use
    - Post Registration
    - Interior Application Processing
    - Trademark Printing
  - Office of Trademark Program Control
    - Quality Teams

Continued on next page.

DEMOGRAPHICS CONTINUED

CENTRAL OFFICES

- **ASSISTANT SECRETARY OF COMMERCE AND COMMISSIONER OF PATENTS AND TRADEMARKS**
  - Executive Assistant (USPTO Business Council Executive Director)
  - Solicitor
  - Office of Public Affairs
  - Civil Rights

- **DEPUTY ASSISTANT SECRETARY OF COMMERCE AND DEPUTY COMMISSIONER OF PATENTS AND TRADEMARKS**
  - Administrator for Legislative/International Affairs
    - Office of Enrollment and Discipline
  - Board of Patent Appeals and Interferences
  - Trademark Trial and Appeal Board
  - Office of Patent Quality Review
  - Office of Trademark Quality Review

- **ASSOCIATE COMMISSIONER AND CHIEF FINANCIAL OFFICER**
  - Deputy Associate Commissioner for Administration and Quality Services
    - Office of Business Process Re-engineering
    - Center for Quality Services
    - Office of Planning and Evaluation
    - Office of Administrative Services
  - Comptroller and Deputy Chief Financial Officer
    - Office of Budget
    - Office of Finance
    - Office of Procurement
  - Administrator for Information Dissemination
    - Office of Public Records
    - Center for Patent and Trademark Information
    - Office of Information Products Development
  - Administrator for Human Resources and Public Affairs
    - Office of Human Resources
    - Office of Civil Rights
    - Office of Public Affairs

- **OFFICE OF THE CHIEF INFORMATION OFFICER**
  - Office of System Architecture and Engineering
  - Office of System Development and Acquisition
  - Office for System Quality and Enhancement
  - Administrator for Computer Telecommunications Operations
    - Office of Network Support Operations
    - Office for Operating Systems Support

COMMENTS SECTION

Reference Page	Question No.	

THANK YOU

We appreciate you taking the time to share your observations and opinions with us. When you are finished, please place the questionnaire in the enclosed envelope, seal it and mail it to us promptly at the pre-addressed location. No postage is required.

FOR USERS OF PALM ONLY

SUPPLEMENTAL PALM QUESTIONNAIRE

42S. In this section, we are asking you to predict the likely positive impact on your job performance if certain features or enhancements were introduced to the PALM system in the future. Specifically, you are asked to indicate what positive impact, if any, the given enhancements will have on your ability to carry out your job more effectively using PALM. Please use the scale provided.

	No positive impact	Little positive impact	Moderate positive impact	High positive impact	Major positive impact
a. A system display that reaches you on your desktop PC, rather than at a dedicated terminal down the hall or in the SPE's office.	○	○	○	○	○
b. A system with fewer outages.	○	○	○	○	○
c. A system whose response time does not slow down during peak usage periods.	○	○	○	○	○
d. A more adequate supply of bar code readers, more conveniently located.	○	○	○	○	○
e. Bar code readers that are more reliable.	○	○	○	○	○
f. A system whose commands rely on words rather than numeric codes.	○	○	○	○	○
g. A system with functions that are standard in most software nowadays -- e.g. backspace correction, back and forward paging, previous screen review, screen toggling, dedicated function keys, on-line help, etc.	○	○	○	○	○
h. Elimination of the need to re-enter your employee ID and art unit number in order to pull up each screen in the same session.	○	○	○	○	○
i. An on-line "menu/listing/catalog" of all screens and special reports currently available to you on PALM.	○	○	○	○	○
j. Re-designed screens that use plain English (rather than codes); and consolidate the information you need on a single screen.	○	○	○	○	○

SUPPLEMENTAL PALM QUESTIONNAIRE CONTINUED

	No positive impact	Little positive impact	Moderate positive impact	High positive impact	Major positive impact
k. Three items clearly displayed on nearly every screen: current location of the application; current status of the application; and attorney's phone number.					
l. A screen that shows a "paper trail" of "touches", including the last 10 locations where the application has been, who had it, for how long, and a prosecution history.					
m. Error messages that indicate in plain English what is wrong about a particular transaction and what to do about it.					
n. Ability to add notes to various PALM screens, for your own benefit and to alert other viewers.					
o. Ability to pull up on-line reports that show your current production.					
p. A PALM report that shows your total examining-related hours rolled up.					
q. A feature that posts an alert on your desktop screen when cases are revived or when other changes of status occur with your docket.					
r. A flag in the system that says, "there are related applications on file."					
s. A flag in the system that says "continuation (or petition, or some other item) has been filed."					
t. A flag in the system that says "paper x has been filed, but not matched with file."					

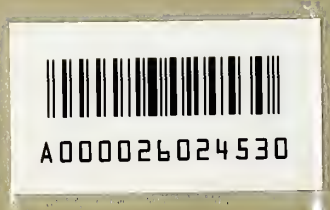
SUPPLEMENTAL PALM QUESTIONNAIRE CONTINUED

	No positive impact	Little positive impact	Moderate positive impact	High positive impact	Major positive impact
u. In general, more fields in the system to indicate the presence/absence/status of necessary parts, such as drawings, etc.					
v. In general, the capability and flexibility to track two or more parallel processes, each with their own required parts, as with Patent Cooperation Treaty.					
w. Bar code stickers to be sent by PTO to the applicant's attorney, to identify subsequent items of paper as belonging to a particular case.					
x. More reliance on on-line, real-time reports, rather than bi-weekly hardcopy reports.					
y. Capability to download "raw" data from 1-2 years back and transfer it directly into a spreadsheet or database package.					
z. Capability to search on full application title, terms, date range, or virtually any other field--plus more sophisticated search functions.					
aa. Ability to search abandoned cases, as well as pending cases.					
bb. A system feature that allows you to wand the case in, take change of it and complete any authorized transaction, even if the last person failed to wand it.					
cc. A personal bar code on the flip side of your ID badge that identifies you as the current recipient of a case.					
dd. A system that accepts your order even if someone else has the file, or if it is in transit, and notifies the person that you are waiting for the file, and ensures that it is automatically sent to you when the other person is through with it.					

SUPPLEMENTAL PALM QUESTIONNAIRE CONTINUED

	No positive impact	Little positive impact	Moderate positive impact	High positive impact	Major positive impact
ee. A system feature that puts out an automatic search if the case doesn't show up where "wanded to" after x amount of time.	○	○	○	○	○
ff. More detailed location reports, based on more specific location codes that more accurately mirror the patent application process as it currently exists.	○	○	○	○	○
gg. Training that is available when you need it, relevant, hands-on, and comprehensive -- plus periodic refresher sessions.	○	○	○	○	○
hh. An updated manual that is better-organized, more compact and includes user-friendly features such as quick references, how-to-do-its, and "cheat sheet"-type lists and tables.	○	○	○	○	○
ii. Online manuals and documentation.	○	○	○	○	○

*U.S. Government Printing Office: 1996 - 404-524/58059


A000026024530